INTERNATIONAL LABOUR OFFICE

INTERNATIONAL LABOUR REVIEW

VOL. LXV — No. 5

MAY 1952

GENEVA
1952

CONTENTS

Page

Social Progress and the Organisation of Social Research, by Roger GIROD 555

Human Relations in Industry, by E. DAYA 578

Input-Output Analysis as an Aid to Manpower Policy, by James BURTLE 600

Reports and Enquiries

Social Policy in Non-Metropolitan Territories 626

Food and Catering in Norwegian Shipping 636

Statistics 642

Unemployment and Employment 644

Consumer Price Indices 653

Wages 663

Hours of Work 667

Bibliography

I.L.O. Publications 668

Publications of the United Nations and Other Intergovernmental Organisations 669

Other Publications 669

The International Labour Office is not responsible for opinions expressed in signed articles

The contents of the *International Labour Review* are indexed in the *Industrial Arts Index* and the *International Index to Periodicals*, which may be found in many libraries in the United States and other countries.

INTERNATIONAL LABOUR REVIEW

VOL. LXV, No. 5 MAY 1952

Social Progress and the Organisation of Social Research

by

Roger GIROD

Centre de Recherches Sociologiques sur les Relations Humaines
(Geneva)

Though Le Play, the founder of the observational method of social enquiry, first published his monographs on the European working class nearly a century ago, it is only in the last decades that social science research has become an organised activity. The author of the following article suggests that there is a reason for this, and that organised research—particularly in the field of social psychology—has grown up parallel with a conscious desire of society to improve its way of life. In the latter part of his article, he describes the organisation of social research in two countries and the relation between it and current social action.

THE fact that the scientific study of "human relations" [1], which occupies a growing place in modern sociology, is making rapid strides in a number of countries but has hardly started to develop in others that are equally well equipped both intellectually and materially, suggests that certain

[1] The term "human relations" is used here in a wide sense (and in accordance with a usage which is gaining ground, particularly in the United States) to cover the whole series of interactions between the individual's consciousness and the collective dynamisms surrounding him. Scientific research into human relations makes use of all the methods of modern social psychology to throw light on the interdependence between human behaviour and the various characteristics of objective situations: the force of events, social structures, cultural processes of thought and emotion, production techniques, work relationships, the media of information, education systems, etc.

conditions must be present before this type of research is possible.

How is scientific research in human relations organised and what is its function in the countries where it has already taken shape ? These are the questions which we shall attempt to answer in this article by examining two examples—the United States and France. We shall also refer briefly to the part played in this field by the United Nations and the specialised agencies.

The United States and France are, together with Great Britain, the main centres of the scientific study of human relations. In France the study is encouraged and financed by the State, while in the United States it is dependent upon private institutions. However, despite this difference, the basic function of the framework supporting scientific research in human relations seems to be the same ; the aim in both countries is to link the work of the social psychologist with the aspirations of the community towards spiritual and material betterment, or in other words to make sociology an instrument of social progress. This article will attempt to show why this is so and how it is being done.

Social Surveys and Social Research

Before we can examine the nature and function of organised scientific research in human relations, we must start by clearly distinguishing between this and ordinary social surveys for practical purposes. Pauline V. Young has tried to define the two branches of social investigation. The aim of practical social enquiry is to throw light on immediate problems so as to enable the community to find the best solutions. It takes the form of surveys on specific issues, and of permanent operations such as those which produce statistics. Social research, on the other hand, is " the systematic method of discovering new facts or verifying old facts, their sequences, interrelationships, causal explanations and the natural laws which govern them. " [1] This definition has the advantage of making the correct distinction between the general aims of the two

[1] Pauline V. Young : *Scientific Social Surveys and Research* (New York, Prentice Hall, Inc.), second edition (1949), pp. 84-5.

types of social investigation which are found in the more advanced countries, but it is not of great help in drawing an exact dividing line between the two types of work. The latter is to some extent an offshoot of the former. Nor is the scientific knowledge of collective phenomena sought by the social psychologist entirely unrelated to practical aims; it is always conceived, in one way or another, as a means of promoting practical social action. Moreover, as will be seen further on, scientific research into human relations can only develop in so far as it contributes something useful to the community.

It was the aim of the older type of sociologist (who was a kind of social philosopher) to stand completely aloof from the world of action and to try to understand social facts without regard to accidental circumstances. However, having no precise data on the actual reality behind these facts, he was never able to go beyond the formulation of abstract doctrines based on those *a priori* moral or intellectual concepts which he originally intended to leave behind when he set out in search of pure knowledge. The modern sociologist, on the other hand, cannot embark on methodical research into the objective content of collective phenomena and thus assemble the material for proper scientific interpretation unless he relates his work to the action of the surrounding community.

This apparent paradox is easily explained when it is realised that social facts are the product of the action of society and that they have no real (and consequently observable) content away from the action itself. These functional relations between social action and the scientific investigation of human relations appear clearly in the works of the best authors.

In the study directed by Dr. Gunnar Myrdal, for example, the express purpose of the scientific investigation of the different aspects of the Negro problem in the United States was to promote a democratic solution of the problem.[1] The scientific studies on industrial relations (Mayo and Roethlisberger in the United States, Friedmann in France) are also always linked more or less immediately with collective efforts

[1] Gunnar MYRDAL and others: *An American Dilemma—The Negro Problem and Modern Democracy* (New York, Harper and Bros., 1944).

directed towards similar objectives. The same is true of the research carried out by Warner into the relations between social classes, by Charles Bettelheim and Suzanne Frère into the actual content of human existence in a given environment, by Lazarsfeld and Merton on the formation and circulation of ideas and emotions, by Lewin and his successors on group dynamics, and by Moreno on sociometry. These are only a few well-known examples, and it would be easy to add to the list.

The practical and scientific aims of all the great modern specialists in the study of human relations are, in fact, indissolubly mixed. In some cases the practical objective comes to the fore; in other cases it remains extremely general (to increase our awareness of the collective mechanisms) but it is always there. It may even happen that a project which at first sight seems to offer little interest to science will give rise to discoveries of very great intellectual value. Thus, Kurt Lewin was led to give definite shape to his sociological theory of the processes of collective action and the principles of his method of " active research " in connection with some experiments with a very prosaic object—that of encouraging the consumption of some foods in preference to others.[1]

Robert K. Merton and Daniel Lerner have made a preliminary study of the problems arising from this twofold aspect—practical and scientific—of modern research in social psychology.[2] They point out that, depending on the field of interest of the body initiating a given project, there is wide variation in the part played by the specialists in defining the problems to be explored. The same is true of the pace at which the work is conducted and of its objectives.

The comments of Merton and Lerner confirm and explain the close relationship between scientific social research and social enquiry for practical purposes. The authors show that in the places where it exists scientific social research is bound up with practical enquiry in a way that sometimes proves

---

[1] Kurt LEWIN: " Group Decision and Social Change " in a collective work, *Readings in Social Psychology* (New York, Henry Holt and Co., 1947), pp. 330-4.

[2] R. K. MERTON and D. LERNER: " Le 'social scientist' en Amérique ", in *Les sciences de la politique aux Etats-Unis* (Paris, Armand Colin, 1951), pp. 243-305.

more and sometimes less satisfactory for the two forms of investigation. But how is it that some countries possess an organisation to co-ordinate and finance research in social psychology in addition to the institutions responsible in all normally developed nations for assembling the demographic, economic, social and cultural data needed by public offices, industrial associations and private undertakings ?

Where sociology has not yet passed the doctrinal or book-learning stage there is usually no scientific social research, even if there is a wealth of reliable statistics and economic and social material. But where this science has already reached the level of methodical investigation of the content of collective phenomena these sources acquire a very great scientific value, and information of an utterly practical nature and quite utilitarian activities apparently unconnected with social research (for instance, committee proceedings, wireless programmes, etc.) are sometimes incorporated into the apparatus of social research. An extreme case is to be found where a community is subjected to exhaustive study and even its humdrum activities are transformed by the methods of observation into sources of knowledge on the inner aspects of social phenomena. Thus, Warner and his collaborators in their " Yankee City " project [1], and Charles Bettelheim and Suzanne Frère in their study of Auxerre [2], used a city with all its institutions and inhabitants as an implement for sociological research.

Experts in the study of industrial relations transform sample groups of workers and employers into instruments for revealing the human interactions which occur in the undertakings. If the prospects opened up by Kurt Lewin's theory of active research are realised, committees can become " social laboratories " and contribute to the discovery of the group dynamisms at work in them. Robert K. Merton was able to use the broadcasts of a popular American radio star as

[1] Yankee City Series, Yale University Press : Vol. I : *The Social Life of a Modern Community*, by W. Lloyd WARNER and Paul S. LUNT (4th ed. 1946) ; Vol. II : *The Status System of a Modern Community*, by W. Lloyd WARNER and Paul S. LUNT (2nd ed. 1947) ; Vol. III : *The Social Systems of American Ethnic Groups*, by W. Lloyd WARNER and Leo SROLE (3rd ed. 1947) ; Vol. IV : *The Social System of the Modern Factory, the Strike, a Social Analysis*, by W. Lloyd WARNER and J. O. LOW (2nd ed. 1948).

[2] Charles BETTELHEIM and Suzanne FRÈRE : *Une ville française moyenne : Auxerre, 1950* (Paris, Armand Colin, 1950).

a " stimulus " for a genuine experiment dealing with the collective behaviour of the public in the atmosphere created by the war.[1]

Where sociology is very active and well-equipped, the research apparatus may therefore include not only all the methods and data of the social survey but also a theoretically infinite number of current activities. It is not true, however, that the practice of social surveys, even when well carried out, will lead automatically to the growth of social research. This seems clearly proved by the following facts : social surveys (particularly in the form of statistics) have been practised throughout the whole of the civilised world for over a century; for about the same length of time sociologists have been perfectly aware of the fundamental importance of checking theory against the facts ; this operation, which constitutes the basic mechanism of scientific research, has so far been practised only in a few countries, and only in recent years.

" Until about the second decade of the twentieth century," writes Donald Young, " American social science was largely developed by scholars working practically alone and with little if any money or other facilities for research ".[2] The same author quotes a report of the Social Science Research Council in which Louis Wirth shows that up to the end of the first world war it was still believed (even in the Anglo-Saxon countries where from the very beginning of modern times scientific empiricism has been greatly venerated) that " the extension and the improvement of social knowledge . . . required no special facilities or encouragement, but only the genius and the will of the individual thinkers. There were indeed (the report continues) sporadic instances of students of social life who, besides formulating certain hypotheses or critically examining the unverified theories that had been handed down, would proceed to check the validity of their generalisations in the light of observations of their own or the ordering and analysis of data collected by others. Most of the

---

[1] Robert K. MERTON : *Mass Persuasion* (New York, Harper and Bros., 1946).

[2] Donald YOUNG : " Organization for Research in the Social Sciences in the United States ", in *International Social Science Bulletin* (Paris, U.N.E.S.C.O.), 1949, Vol. 1, No. 3-4, pp. 99-107.

propositions of the social studies, however, had nothing more to support them than established tradition, the prestige of their author, the internal logical consistency of the assertions made, or their plausibility in the light of such other facts or theories as were thought to be true on the basis of equally flimsy evidence."

Data obtained in such a way obviously do little to advance our knowledge of the interactions which, in collectively shared experiences, form a dynamic link between human realities (including the consciousness of individuals). But we need exact data on these relations to increase the effectiveness of our deliberate action on the forces which influence the direction and level of our existence. It seems true to say that, where sociologists have tried to meet this need, they have managed to escape from the rut of verbal theorising. On the other hand, where sociologists have not succeeded in gearing their work to the constructive action of the community of which they form a part, they remain in the position described above by Louis Wirth. There are profound reasons for this.

The Prerequisites of Social Research

When sociologists deliberately try to link their work with the more or less conscious and sustained efforts of society towards greater welfare, it is quite easy for them to advance from the stage of the formal dissertation to that of scientific investigation. If this link is not established, research in social psychology cannot develop in a satisfactory manner.

In practice, the work involved in this type of research nearly always challenges, in one way or another, certain facts which affect the political and social organisation of the community, or certain of the community's values and prejudices. It can therefore hardly fail to arouse opposition. And so the first condition for the existence of social research is that the resistances which it provokes should not be capable of causing it to be banned or perverted. This means that a large section of effective opinion must consider that the research is useful and that it has a worthwhile task to perform.

Assuming this basic condition to be fulfilled, let us consider

the technical reasons which make it necessary that social research should be conducted with a view to its usefulness to the community. The investigations involved are fairly costly and there is therefore a problem of finance. The investigators must be able to penetrate into the intimate life of the community to an unusual extent if they are to obtain material on the inner aspects of its behaviour and grasp its living significance; this means winning the community's confidence. But socio-psychological research can only be financed if those who control the funds assigned by the community for cultural development are convinced of the value of this research to the extent of allocating credits; and the actual content of the phenomena studied can only be observed if the human groups are sufficiently convinced of the sincerity of the investigators and the necessity for their work to put up with their questions and to answer them freely and honestly. Thus, it seems clear that social research cannot develop within a society unless it is of utility (though not necessarily in the material sense) to that society.

Since, however, scientific work does not normally produce quick results and involves many exploratory and checking operations which are of no practical interest, whereas human society is faced with urgent problems requiring an immediate solution and generally judges the usefulness of things in the light of these necessities, social research is immediately confronted with a dilemma. It cannot exist unless it is useful, but if it is to be scientific it cannot satisfy the criteria by which society usually judges usefulness. In other words the sociologist has the following choice: he may either be content to help the social survey practitioners and concentrate as they do on solving urgent problems, in which case the most he can hope for is to improve existing knowledge and methods. Or he may try to carry out basic research, taking the necessary time and engaging in much work of no apparent interest, in which case there is a great risk that he will not obtain the support which he needs.

It is interesting to note that social research in human relations only exists in those countries where it has been possible to link the work of sociologists with matters of deep concern to the nation, such as removing the causes of war inside and outside the country, raising the standard of living,

expanding the people's liberties and making them universal, increasing the productivity of its economy, improving relations between the various social or ethnic groups of which it is composed, and removing as rapidly as possible any anomalies detrimental to certain categories of human relations or to the cultural and material development of the whole population.

In such circumstances socio-psychological research can be organised on a scientific basis and at the same time be of maximum utility. The appropriate institutions are able to make available the necessary funds. A feeling of confidence begins to develop between the investigators and the public, who cease to regard the sociologist as a kind of healer who should be able to conjure away their individual difficulties, and quickly learn to picture the scientific investigation of collective behaviour as a vast undertaking (somewhat comparable with education) intended to help the community in gradually achieving a better life.

Moreover, the social psychologist can only offer successful resistance to the pressures detrimental to scientific freedom which are inevitably exercised by intermediate groups (public departments, big business, political parties, ideological movements, etc.) if he strengthens his ties with the whole community and conducts himself in such a way as to be able to appeal to it if necessary, with a good chance of being understood and supported. The freedom of action and judgment of the specialist is not safe, and cannot be validly controlled, unless he can work in the open and submit his results to the criticism of his equals and the public. The importance of this last point is obvious.

To sum up, scientific research in the field of human relations only becomes possible in a given country when a specific organisation has been set up to perform the following functions: (1) to promote recognition of the usefulness of this type of research in relation to the long-term aspirations of the community towards material and cultural betterment; (2) to create an atmosphere of confidence between the investigators and the community; (3) to make funds and technical facilities available for research; (4) to secure freedom of action and judgment for the researchers; and (5) to encourage honest discussion between them and the public.

Research Machinery in the United States and France

We will now examine the principles and functioning of organised social research in two countries which are very different as regards their economic position and intellectual traditions: the United States and France.

In the United States modern methods of scientific investigation into collective phenomena were introduced in the years preceding the first world war by pioneers such as William I. Thomas, Florian Znaniecki and Robert E. Park. Since then they have developed to such an extent, both in the universities and in the commercial field, that social research has now acquired a standing comparable with that of a leading industry. During the last decades social research activities expanded in an unprecedented manner and have come to be recognised as of importance to one of the basic functions of democracy. This development was stimulated by the social problems which followed the first world war and by the readjustments which were necessary in the post-war era. There are thousands of persons employed in this new type of industry and they carry out their work in extremely varied circumstances.[1]

In France scientific research in the field of human relations really began at the end of the last war. The introduction of new methods did not bring about a radical transformation of all the human sciences as in the United States; it merely resulted in the addition of a number of new tools to the very accurate sociological equipment already built up by such outstanding teachers as Durkheim, Davy, Fauconnet, Halbwachs, Simiand, Mauss, and also Le Play and his successors. However, as Raymond Aron noted some years before the last war, France had no sociological institutes such as existed in several other countries. "In the United States, for example, one can judge their usefulness: assembling the results of special research, preparing treatises for the training of teachers, initiating large-scale collective studies".[2] This gap has now been bridged.

---

[1] Cf. Pauline V. Young, *op. cit.*, p. *xv*.

[2] Raymond Aron in *Les sciences sociales en France : Enseignement et recherche* (Paris, Hartmann, 1937), p. 40.

In both countries social research is usually carried out by teams of specialists under large-scale programmes carefully prepared in advance, and is sponsored by institutions which are held in high repute by the authorities and by the public.

The methods used vary considerably according to the subject of research, but certain essential features are always present and are the same in the United States and France: the existing material on the subject under study is thoroughly examined but this library work is only a preparation for direct observation, when the behaviour characteristics of the groups concerned are systematically noted and a relatively large number of individuals (forming usually a representative sample of the community) are questioned on the content of the behaviour patterns.

Organisation for Research in the United States

In the United States the main basis of the organisation which makes the operations described above possible is provided by a number of "foundations"—a type of institution which plays a leading part in the cultural life of the American people.

It is largely owing to the financial and moral support of these foundations that American social psychologists can carry out their work, form teams, communicate with the public and link their research with the aspirations of the people. The foundations vary greatly in character. Many take the form of endowments to particular universities, which have been added to over the years by gifts and income from various sources (public grants, private philanthropy, issues of bonds, etc.).[1] The largest foundations and those which play the greatest part in the development of social research operate over a wider field at the national or even the international level. A survey showed that there were 505 foundations engaged in financing humanitarian activities, among which social research occupies a place of growing importance.

---

[1] Cf. *American Universities and Colleges*, edited by Clarence Stephen MARSH (American Council on Education, 1936), pp. 20-1; and Nicolas HANS: *Comparative Education—A Study of Educational Factors and Traditions* (London, Routledge and Kegan Paul, 1949), pp. 284-9.

The total capital of these 505 foundations amounted at the time of the survey to about $2,000 million.[1] This capital, for the most part invested very securely, brings in a regular income which is allocated for work considered to be of social utility in the fields of education, health, science, and, particularly, human relations.

The great Rockefeller and Carnegie foundations date from the beginning of the century. Since then, the introduction of graduated income tax and the anti-trust legislation have curbed the accumulation of large fortunes, with the result that there are unlikely to be any more such foundations. However, the high rate of taxation continues to encourage the formation of a large number of rather small foundations, which tend increasingly to unite in a given locality or field of common interest so as to increase their effectiveness by pooling resources.

All these foundations are not equally philanthropic. The Federal government has identified some 10,000 foundations and many of these were set up as a means of evading taxation or circumventing the economic legislation. The Revenue Act of 1950 attempted to counter these abuses.[2] In the same year a plan was approved for a governmental foundation, the National Science Foundation, which at present has divisions only for the exact sciences but is not prohibited from concerning itself with the social sciences later on.

While the economic structure of the United States and varying economic conditions explain the growth of the foundations and their principles of financial management, the objectives of these institutions, particularly the larger ones, are a reflection of the American way of thought. When Andrew Carnegie envisaged the creation of the foundation that bears his name, he believed that a millionaire should regard himself as a temporary trustee for a part of the national wealth. It was right that he should increase the yield during his lifetime in the interests of the community, but he should then transfer it to the community, preferably in a way that would assist progress and welfare. Private moral motives are

---

[1] Shelby M. HARRISON and F. Emerson ANDREWS : *American Foundations for Social Welfare* (New York, Russell Sage Foundation, 1946), p. 58.

[2] See *Social Work Year Book, 1951* (New York, American Association of Social Workers, 1951), pp. 211-8.

tending today to give way to impersonal principles based on the economic and social conceptions of the "American way of life", but the essential idea behind the foundations is still that of using private assets in the interests of the community.

Generally, the large foundations make it a rule to avoid acts of charity which only alleviate individual hardship; they endeavour to give their support to activities which seem capable of attacking social weaknesses and anomalies at their root, through studies and research into their causes and the best means of correcting them. This being so, the foundations make it their aim to assist pioneer scientific research which cannot be expected to produce immediate results and cannot therefore be undertaken by ordinary institutions that are tied to practical or educational programmes of immediate concern.

Scientific research in the field of human relations is exactly the type of activity which the foundations wish to support and it is playing an increasingly important part in their programmes: "... education, health—including medical research and medical education—and social welfare continue to claim major attention of foundations. However, there is a discernible rise in interest in that controversial area, the social sciences, where it seems unlikely that tax funds will ever share any major portion of the burden for research. Since 1945-46, grants of the Carnegie Corporation related to utilisation or development of the social sciences have increased from 28 per cent. to 73 per cent. of its total grants." The writer of the passage quoted adds that the Russell Sage Foundation, the Falk, Grant and Haynes Foundations, the Viking Fund and the Ford Foundation (which has resources of over $200 million and is the most powerful of all the present-day foundations), have decided during recent years to concentrate their attention on this "most needy of all areas—man and his relationships".[1]

In addition to the foundations, many other humanitarian institutions, such as the associations and movements for improving racial and international relations, education, etc., support social research. Most universities and colleges of any standing also give it considerable material assistance by making grants to institutes or for special programmes, by paying the

[1] *Social Work Year Book 1951, loc. cit.*

salaries of social scientists, by providing funds for publications, and in many other ways. As one writer has pointed out, social psychology research workers in the United States have no financial difficulties ; the wealth of resources at their disposal has been an important factor in the success of American sociology and is one of the aspects of the high standard of living.[1]

The work carried out by American social psychologists on behalf of public administrations and private undertakings represents for them a source of income and a means of increasing their practical experience. Only rarely, however, can such work properly be termed social research. It may be that in the long run this situation will change ; for the moment, however, the foundations and similar humanitarian institutions seem to supply the main motive force for the progress of this type of research. In practice, no investigation of major scientific interest is carried out without their support, and it is this type of work which helps a science to develop and indirectly provides scope for wider and more successful practical applications.

The American specialists in socio-psychological research have established working organisations through which they maintain regular contact with the foundations and other similar institutions which distribute funds. These organisations are sometimes university departments and institutes, sometimes social research centres more or less independent of the universities, and sometimes agencies mainly concerned with practical work for public administrations, industrial organisations, undertakings, news services, etc., but also undertaking social research.

The keystone of the whole structure is the Social Science Research Council, a body grouping the national associations of specialists in the various human sciences : the American Anthropological Association, the American Economic Association, the American Political Science Association, the American Psychological Association, the American Sociological Society and the American Statistical Association. The main task of the Council, which was founded in 1923, is to advance know-

[1] See Robert E. L. FARIS in *La sociologie au XX*me *siècle*, edited by Georges GURVITCH and Wilbert E. MOORE (Paris, Presses Universitaires de France, 1947), Vol. II, p. 558.

ledge concerning human relations through development of research in the social sciences. It endeavours to obtain full recognition of the importance of this type of work and to co-ordinate the action of the research workers. It awards fellowships to assist young research workers in completing their training and provides grants to encourage work likely to give a definite stimulus to research in unexplored or inadequately explored fields. It keeps research workers in contact with each other by various means, including regular publications. The necessary funds are made available by the big foundations (Carnegie, Rockefeller, etc.), and members of these foundations are on the board of directors of the Council.

The wide market for books in English obviously facilitates the publication of American literature and periodicals dealing with methods and results of socio-psychological research. The funds made available—as a rule by foundations, humanitarian associations and universities—to authors and groups of specialists for the publication of their works are usually paid back quite quickly.

The mass information organs find in these publications a wealth of material on matters of keen interest to the public, and are able to make the work of specialists in human relations research known to the community in general; such articles make the public conscious of the significance of this kind of work and more ready to co-operate with the research workers.

Organisation for Research in France

Whereas the social research machinery in the United States is, as we have seen, richly endowed with funds and composite in character, it is extremely poor in France but constructed according to a very logical plan. The two mainstays are the teaching profession and the National Scientific Research Centre (C.N.R.S.), which finances and co-ordinates the projects. The C.N.R.S. was set up shortly before the second world war [1] to stimulate, organise and finance research in all fields. About one-third of its total budget is set aside for the human sciences and two-thirds for the exact sciences.

[1] As far back as 1902, a Research Fund provided grants for equipment and supplies and, somewhat later, for the cost of publications. From 1930 onwards research workers were paid out of a National Fund for Science.

Among the former, psychology, social psychology, sociology, anthropology and economics are well to the fore.[1]

The C.N.R.S. provides financial assistance for research workers and grants for the purchase of equipment and supplies, and also contributes to the cost of scientific publications. Applications are examined by a number of advisory committees. Most of the research workers in the human sciences are professors or members of the teaching profession working in various official institutions, and research forms part of their normal duties, for which they receive a salary. Nevertheless, the C.N.R.S. is at present paying 1,900 researchers, of whom 1,650 have no other salary and are full-time research workers. A recent development was the creation by the C.N.R.S. of a series of grades for research specialists: *stagiaire de recherches*; *attaché de recherches*; *chargé de recherches* (3 steps); *maître de recherches* (3 steps); *directeur de recherches* (3 steps). An *attaché de recherches* is equivalent in status and university qualifications to a faculty assistant; a *directeur de recherches* is on the same level as a full professor. This system has the special advantage of making it possible to include young research workers in investigation teams and to introduce them to scientific work while they are still preparing for their teachers' examination or a doctor's degree.

The Centre of Sociological Studies, founded in 1946 under the auspices of the C.N.R.S., is the principal centre in France for scientific research in the field of human relations. This Centre enables research workers to meet and form teams, and it endeavours to co-ordinate their work and to assemble the information which they require. The members prepare the periodicals and symposia in which the results of enquiries are reported. The Centre constitutes the official link between the C.N.R.S. and the social research workers, and its main aim is to "promote and co-ordinate research in the fields of sociology and the social sciences and to organise lectures and investigations for this purpose".[2] Most of the investigations have dealt with the social structure of contemporary France;

[1] L. KOPELMANAS: "Activité du Centre National de la Recherche Scientifique", in *International Social Science Bulletin*, 1949, Vol. I, No. 3-4, pp. 123-8; and "Le Centre National de la Recherche Scientifique et les problèmes actuels de la recherche française", in *Revue Socialiste* (Paris), June-July 1948, pp. 120-34.

[2] *L'Année sociologique, 1948-49* (Paris, P.U.F., 1951), p. 542.

they include studies on religious practice directed by Gabriel Le Bras, on legal practice by H. Levy Bruhl and Roger Houin, on urban sociology (a monograph on the town of Auxerre) by Charles Bettelheim, and on the redistribution of occupational categories in industry by Georges Friedmann.

Other projects have been undertaken more recently, including a team investigation into the sociology of knowledge led by Georges Gurvitch and a study on sociometry. The preliminary results have been published in the *Cahiers Internationaux de Sociologie* and in the *Cahiers de la Fondation Nationale des Sciences Politiques*. The Centre of Sociological Studies works in close collaboration with the economic and social science department of the *École Pratique des Hautes Études*, and also maintains close relations with the other university institutions concerned with the study of present-day man and with the training of leaders for the political, administrative, economic, trade union and educational fields.

In the fields of anthropology and ethnology, the *Musée de l'Homme* is carrying on and constantly developing the great traditions created before the first world war by the French Institute of Anthropology (of which Durkheim, Lucien Levy-Bruhl, Mauss and Paul Rivet were among the first members). On the other bank of the Seine, the School of Political Science and the National Political Science Foundation sponsor large-scale research programmes bearing on French political life, including studies in electoral geography (sociological analysis of political behaviour) which are being carried out under the auspices of the Paris Institute of Political Studies by a number of specialists under the direction of François Goguel. The National Institute of Demographic Studies also has a department for social psychology, which is undertaking large-scale projects.

Many similar research centres could be cited. A few months ago the Ministry of Labour and the University of Paris set up an Institute of Industrial Social Science under the direction of Georges Friedmann. The purpose of the new institute is to develop research into the various factors which influence human labour and to promote the practical application of industrial sociology. It is anticipated that the Institute will be of great assistance to the civil service and industrial associations.

The provincial universities maintain contact with the research bodies in Paris and the professors collaborate with their Parisian colleagues. There are also various provincial institutes, such as the Institute of Industrial Science at the University of Lille.

The sociologists have access, whenever the need arises, to the information available to certain public bodies, such as the National Institute of Statistics and Economic Studies. This Institute was set up in 1946 as a result of the regrouping of a number of existing services which were then modernised, and includes a section devoted to sample surveys which provides most valuable material. In addition, the French Institute of Public Opinion regularly collects verified data on the attitude of the public; it also undertakes socio-psychological studies of the monograph type relating to certain aspects of French culture. Accounts of these surveys are given in the Institute's review *Sondages*.

The study of Auxerre in 1950 by Charles Bettelheim and Suzanne Frère may perhaps be regarded as a typical product of the research machinery now at the disposal of French social psychology.[1] The aim of the authors was, briefly, to assemble the material for an objective description (expressed as far as possible in precise figures) of the various aspects of the real life in a representative French urban community. After giving a brief historical and geographical sketch of the town, Charles Bettelheim and Suzanne Frère studied the structure of the town—the number and distribution of the inhabitants according to various criteria (age, family circumstances, calling, business, educational background, etc.)—and obtained by direct enquiry on a sampling basis data on causal relations and psychological motivations, and data supplementing the descriptive material already assembled which could not have been obtained otherwise. In this study, which was made possible by the backing of the Centre of Sociological Studies and by the assistance of the *École Pratique des Hautes Études* and the National Foundation of Political Science, material help was given by the National Institute of Statistics and Economic Studies. This body provided the statistical data used in the first part of the study, worked

[1] *Une ville française moyenne, op. cit.*

out a sample of the population for use in the second part (when 1,806 persons from very different spheres of life were asked 139 questions by ten investigators) and analysed the replies. Other public services—local government departments, the railways, the Post Office, the Bank of France, etc.—also co-operated in the study. Suzanne Frère was at the time an *attaché de recherches* at the C.N.R.S. and Charles Bettelheim was a *chargé de recherches* in the same organisation. Being officially sponsored by institutions with a high intellectual reputation, the investigators were well received in Auxerre. They, of course, took care to prepare the people of the town by means of an inaugural lecture, articles and various meetings. The report of the investigation was published with the assistance of the C.N.R.S. in a collection of scientific studies entitled *Cahiers de la Fondation Nationale des Sciences Politiques.*

The above example well illustrates the way in which organised French research on actual human situations is functioning. Having no need to find a philanthropic society or similar institution to sponsor their investigations, French researchers are less inclined than their American colleagues to publicise the practical value of their activities. It seems to be tacitly assumed that the community will benefit automatically from their work, since the end product will pass into the national store of knowledge through the institutions which maintain the intellectual life of the country.

The new trend of French sociology towards methods which will permit systematic research into the collective life of current society coincides with a profound change in the French sociologist's conception of his function. Georges Gurvitch, whom many regard as the leading theoretician of contemporary sociology, has clearly brought out the significance of this change. Whereas sociologists in France were formerly preoccupied with the philosophical aspects of social problems and with ancient institutions, they are now primarily concerned with society in the actual making. Thus, in the opinion of Gurvitch, sociology is reaching maturity by becoming empirical and practical. It is no longer an effort to deduce the essence of dead or already completely crystallised social structures, but now takes the form of deliberate action to discover the forces at work in society while there is still time to influence them. Naturally, this does not mean that the sociologist

should hastily try to improvise practical remedies which can be applied immediately to current problems. If his research is to be of real use, it must be based on properly checked facts which have been carefully analysed.[1]

In other words, sociology can render positive practical service to the community only in so far as it is genuinely scientific. The new organisation of sociological research in France is clearly intended to enable the sociologist to carry on his work in such a way as to comply with both these requirements. It gears his work to the current endeavours of French society and to its aspirations towards greater welfare, while at the same time enabling him to carry out sound research on objective phenomena. It is interesting to note that all the research programmes now under way in the field of social psychology relate to problems of practical interest to the community—industrial relations, productivity, town life, and the political, economic and intellectual life of contemporary human beings. Thus the scope of French sociological research is tending more and more to become identical with the scope of current social action.

The results obtained in a few years by French specialists in scientific social research have been remarkable and show clearly that French sociology is on the threshold of a new and brilliant era. Moreover, their current activities are beginning to influence the way in which the persons who guide social action (trade unionists, politicians, economists, specialised journalists, etc.) approach certain major problems, such as the organisation of industry, education, popular culture, the political education of the masses, and even town planning.

It is interesting to note that this advance in French sociology began as soon as it could be organised in a way that enabled it to perform definite services as an instrument of social progress.

The Role of the United Nations and Specialised Agencies

Practically all the activities of the United Nations and the specialised agencies involve very detailed studies and

[1] Georges Gurvitch : *La vocation actuelle de la sociologie* (Paris, P.U.F., 1950).

enquiries of the type of the social survey. On the other hand, work of the kind undertaken by the Social Sciences Department of U.N.E.S.C.O. on the subject of collective tensions comes within the description of social research and may well lead to an improvement in the concepts and methods used in this type of investigation.

However, any attempt to give even a very brief account of the use made of sociological research by the United Nations and the specialised agencies would lead us far beyond the limits of this article. The question that we have been seeking to answer is as follows : why has social research developed in a satisfactory manner in some countries while in others, where there is no lack of funds or brains, this has not yet been possible ? We will therefore limit ourselves to a brief survey of the activities of the international organisations which bring nearer a successful solution of the problem of organising social research.

Materials are assembled and special investigations initiated by these institutions chiefly in order *(a)* to provide the sociologist with an abundance of reliable information at a low cost ; *(b)* to draw attention to the usefulness of an objective understanding of collective realities from the point of view of social progress; and *(c)* to provoke a certain amount of international rivalry in the field of statistics and of economic, social and cultural information. It is worth while examining these three points. There is a central publication which provides a very clear guide to all the material accumulated by the United Nations and the specialised agencies on problems that might be of interest to a sociologist. This is an annual catalogue of the economic and social projects undertaken by these institutions. Besides this there are the yearbooks and technical periodicals of the United Nations, the I.L.O., F.A.O., U.N.E.S.C.O., W.H.O., and other institutions. There is no need to stress the importance of this material as a source of objective information on the great problems of our times. Its essentially international character gives it a special value in the eyes of the sociologist. Suppose, for example, that a sociologist is asked (as happens more and more frequently) to analyse the productivity of one branch of the economy of his country. Among other things, he is required to determine to what extent the industry satisfies the needs which it serves, having

regard to the cost to the community. He must also find out what factors need to be influenced if the industry is to play a more effective part in raising the general standard of living. To obtain this type of data, the sociologist has need of standards of reference that will enable him to state impartially that one method of production is more effective than another, or that the presence of such and such an element has such and such an effect. Faced with a similar problem, but one relating purely to material things, the physicist would probably undertake a series of experiments. The sociologist must work almost exclusively by methods of comparison. He could draw very useful conclusions, for instance, by comparing the present rate of productivity in the industry which he is studying with the rate 10, 20 or 50 years ago. Unfortunately, this is usually impossible as past generations were very little concerned with compiling exact data on problems which did not then arise or which took an entirely different form. Chronological comparisons are therefore rarely practicable and even more rarely of any value. The alternative is to make comparisons in space, between different countries, continents or regions, and this method is one of the chief tools of the modern sociologist. In a few years the United Nations and the specialised agencies have probably increased the amount of material available for such comparisons ten times. The technical assistance programme alone has led to a vast number of comprehensive surveys on the actual life of the Asian and African peoples, about whom little was known until recently. What has been said on the subject of analysing productivity applies equally to all sociological research calling for comparative data on the interactions between a given aspect of the behaviour of a community and certain characteristics of its position and culture. Thus, the United Nations and the specialised agencies are playing a very important part in improving the equipment of the sociologist, thereby putting him in a better position to organise extensive research programmes.

Let us now pass to our second point. All the studies and enquiries of the United Nations and specialised agencies form part of a programme which itself is an expression of the aspirations of the international community towards peace and a higher standard of living. These studies and enquiries are widely publicised by the press and by the broadcasting services.

They are carried out with the direct and indirect co-operation of a great number of officials and experts from all countries. They are studied in the universities and consulted by specialists. They have thus the great advantage of accustoming both the public and the competent institutions to think of social research in its relation to the basic aspirations of the community and as a major instrument of social progress. There is no doubt a connection between this and the fact that a keen interest is now being taken in sociological research in countries and sectors of the population where until recently it was considered as a purely academic and strictly theoretical discipline.

This new attitude obviously simplifies the task of those who are concerned with promoting research. Its development is assisted by the rivalry in the field of research—our third point—which arises among the different countries belonging to the United Nations and specialised agencies. Each country is invited to make its contribution to the collection of data used as a basis for the statistics compiled by the organisations and for the various studies which they carry out. Those nations whose statistical services and economic, social and cultural research departments are inadequate naturally feel that they must improve them. This is a powerful stimulus to the progress of social investigation, both for scientific and for practical ends.

Human Relations in Industry

by

E. Daya

International Labour Office

The first article in this number of the Review *draws attention to the growing emphasis on fact-finding and the scientific interpretation of data in the study of human relations in society. The following article briefly surveys recent developments in one part of that field—industrial relations—with which the I.L.O. has long been concerned. As a result of the new stress on industry as a form of social (and not merely economic) organisation, there is increasing consciousness that industrial relations are essentially human relations and that in their study the fullest use must be made of the insights and techniques of the social sciences in general.*[1]

For practical reasons, the material used in the article is mainly drawn from American, Canadian and English sources, but similar developments have, of course, taken place in a number of other countries.

A New Approach to Industrial Relations

IN bringing workers and management together in a common productive effort, industry gives rise to a type of human relationship combining elements of conflict with elements of mutual interest. The elements of conflict become more

[1] For a study of human relations with particular reference to the metal industry, see Report II for the Fourth Session (1952) of the I.L.O. Metal Trades Committee: *Human Relations in Metal Working Plants* (Geneva, I.L.O., 1952).

evident with the development of trade unionism, which makes the workers feel stronger and enables them to give expression to their collective needs and desires. This has led to a tendency to view industrial relations mainly in their negative aspects, in terms of a " philosophy of conflict ", with emphasis on the settlement of disputes. There is now, however, a growing conviction that the accent should be shifted from these aspects to the more constructive aspects of co-operation and industrial peace.

Industrial peace does not, of course, mean the complete absence of industrial disputes. Since the goals of workers and of management cannot all be identical, a certain amount of conflict is regarded as inevitable and even desirable in this relationship. But while there are goals which represent a real and unavoidable conflict, there are mutual goals accompanied by elements of conflict of only minor significance, as well as goals which are only apparently conflicting. This fact suggests that fuller knowledge could extend the area of understanding between management and workers, and provide ways and means of getting people in industry to live together and work together with greater efficiency and satisfaction.

Such a development is being promoted in some countries by a study of what many writers term " human relations in industry ". Underlying this approach is the conviction that the development of co-operation and constructive relations in industry is not the result of accident or guesswork, but must be consciously pursued. It is not enough to treat the ills of industry when they appear; what is needed is greater insight and knowledge of human behaviour in industry. Attention is focused on the motives, interests and processes by which people in industry interact with each other in day-to-day, face-to-face relationships. These are matters that require intensified application of the light and thought of the social sciences, not of economics merely but also of psychology, sociology, anthropology and political science. It may thus be said that the new approach has two basic features: (1) it involves a shift of emphasis to the human factor in the organisation of production, and (2) it involves a recognition of human relations in industry as an important field for study and research.

Point of Departure of the New Study

The new approach may be said to start with the premise that human behaviour in industry is influenced by a complex of economic, psychological and social forces constantly interacting upon each other. In the first place, the human personality is seen as a bundle of desires or motives, which include not only the economic but also the social and the psychological. The diversity of these motives and the varying degrees in which they are felt often make it difficult to predict men's actions in detail. However, there are certain broad drives that profoundly influence conduct, and these have been listed by one author as follows :

> First, there is man's *sense of dignity*, the conviction that he has basic human rights that others must respect. There are the complex emotions connected with self-esteem : the seeking for self-expression, the opportunity to advance, success in one's endeavours, and the satisfaction of attaining a useful place in the world. Second, there is the need for the *esteem of others*. Men crave recognition, the feeling that their human dignity is respected, and a confidence that they will be treated like human beings in all relationships. Third, there is the basic *instinct of survival*. This requires assurance that a man and his family can obtain the food, clothing, housing and other essentials of the most modern decent standards of living. Fourth, men desire *security*. It is not enough to meet their needs for today. They wish to have assurance about their future. Finally, men have their *social instincts*. They naturally tend to associate with those who share their interests and to develop teamwork in pursuing common undertakings.[1]

In the second place, a man satisfies most of his needs by interacting with other people or by membership of different groups. He is at the same time a member of a family, a church, the community at large, a formal organisation and perhaps an informal group. He is influenced by the leaders, customs, traditions and beliefs of each group and by its interactions with other persons and groups. A group may develop motives of its own which may not coincide with those of a member but which nevertheless influence his conduct.

---

[1] *Human Relations in Modern Business*, A Guide for Action Sponsored by American Business Leaders (New York, Prentice-Hall, 1949), pp. 2-3.

Since many people spend a great part of their lives in the factory, an industrial organisation must be regarded not merely as an economic organisation in which everything can be assessed in terms of cost, profit and technical efficiency, but also as a kind of social organisation in which individuals and groups satisfy their complex needs. However, though much progress has been made by applying science to further the economic purposes of the concern and the individuals within it, no comparable development of skills and techniques for getting individuals and groups to work together with satisfaction to themselves has taken place.

The application of scientific method to the study of human problems is all the more necessary because of the nature of the work in the modern factory. The dominant role of the machine has created monotony and the worker has little outlet for the creative impulse and for pride in workmanship. The " command " principle of management further inhibits him from self-expression. The size of the organisation makes it difficult for him to visualise his position in the entire structure and to feel that his contribution is significant. Moreover, contact and communication between workers and management are less direct, and the two groups tend to form ideas about each other which are often far from the truth.

Another source of difficulty arises from the frequency of technological and personnel changes. Every technological change, whether in machinery or in methods of work, disturbs the social equilibrium of a working group. Personnel changes prevent an individual from developing ease in communicating and working with others in the group. The supervisor no longer leads a team of persons he has known for years, and—

> for the individual worker the problem is really much more serious . . . For all of us the feeling of security and certainty derives always from assured membership of a group . . . When groups change ceaselessly as jobs and mechanical processes change, the individual inevitably experiences a sense of loss . . . where his fathers knew the joy of comradeship and security.[1]

These conditions have given rise to new patterns and problems of status and motivation. They result in aspects of group life and activity which have no counterpart in the

[1] Elton MAYO : *The Social Problems of an Industrial Civilization* (London, Routledge and Keegan Paul, Ltd., 1949), p. 67.

simpler societies that prevailed before the coming of factory production; and the accumulated knowledge of the past, with its emphasis on man-to-man relationships, can provide only limited guidance in the problems of industrial life. It is because of these changes that scientific investigation has become a vital necessity.

The Development of Research

Organised research can normally be carried on only by institutions which have adequate resources and the necessary technical staff. It is for this reason that the universities in a number of countries have become centres of research activity. In a few cases special departments have been established with the sole function of undertaking research in this field, while in recent years there has been a notable increase in the number of industrial relations departments, institutes, schools or centres which combine research with labour education and professional training in industrial relations. In these institutions there is growing collaboration between specialists in the various social sciences, and more frequent resort to joint research.

Outside the universities many independent groups are engaged in research or in the promotion of research. These include the learned societies, privately organised or endowed research institutions, civic organisations and the associations of personnel managers, personnel directors and foremen. Large industrial concerns devote considerable sums of money to research on specific aspects of human relations in their plants. The research departments of some large trade unions also undertake research in certain areas of the subject.

The studies so far carried out have covered a wide range of problems, and it is convenient to divide them into two main categories. The first comprises studies which are centred on the problems of group functioning. The emphasis is on the interactions between individuals in a group as a social unit, as influenced by other social units. The term " industrial relations " is given a broad meaning so as to include all aspects of the organised activity of an undertaking, including the multiple relationships between the management, the workers and the trade union.

In the second category the studies are mainly concerned with union-management relations. Attention is focused on the interactions between the management and the trade union as social institutions through which individuals give expression to their desires. The problems dealt with are those that relate to the general character of these relationships and particularly to the procedures, techniques and processes involved in collective bargaining.

Group Functioning

It has been customary to regard the industrial organisation as a machine, with each part performing a specific function. While this approach may be useful for certain purposes, it is sadly inadequate in regard to the human problems involved. The parts of the organisation are human beings who have interests, sentiments and desires that transcend the routine of their daily work. " If the social scientist in industry has any virtue, it is chiefly that of ' seeing industry whole ' as a functioning organisation made up of persons in various official and non-official relationships, and as an organisation which is in some way or other related to other organisations, to the community, and to society as a whole." [1]

" Seeing industry whole " means seeing the industrial organisation as a small society or social system, and this principle underlies the studies on group functioning. Though many of these fall within the area of applied research, attention is increasingly being given to the development of basic theories or principles concerning group behaviour. In the following pages reference will be made to certain major aspects of industrial organisation which have so far been investigated.

Social Processes

It is of first importance to understand the nature of social processes within the industrial organisation. It has been said that in industry, as in any organised activity, there are two sets of social processes going on—

[1] Wilbert E. Moore : *Industrial Relations and the Social Order* (New York, The Macmillan Co., 1946), p. 5.

(1) There are those social processes which are directly related to the achievement of purpose and which result in " formal organisation ". In business, for example, formal organisation leads to such things as practices established by legal enactment or policy, specifications, standard methods . . . They are concerned with those means most appropriate to achieve certain ends. And as such they can be changed rapidly.

It should be noted that these manifestations of formal organisation are essentially logical in character. Through formal organisation man expresses his logical capacities ; in fact, it is one of the chief outlets for the expression of man's logical capacities . . .

(2) There are those spontaneous social processes going on in any organised human activity which have no specific, conscious, common purpose and which result in " informal organisation ". Informal organisation leads to such things as custom, *mores*, folkway, tradition, social norms, and ideals. In business, for example, it expresses itself at the work level in such things as what constitutes fair wages, decent conditions of work, fair treatment, a fair day's work, and traditions of the craft. It takes the form of different status systems . . . These are attitudes and understandings based on feeling and sentiment. They are manifestations of " belonging ", and they do not change rapidly.

It should be especially noted that these manifestations of informal organisation are not logical. They are concerned with values, ways of life, and ends in themselves—those aspects of social life which people strive to protect and preserve and for which at times they are willing to fight and even die . . . [1]

The nature of the social processes going on within the industrial organisation continue to be the object of study and attention. One of the most interesting ong-term projects in this direction is an investigation of human relations in the Glacier Metal Co. Ltd. by the Tavistock Institute of Human Relations in London. A report of the investigation—

shows how unconscious forces in group behaviour, and the unwitting collusion between groups for purposes of which they are only dimly aware, are important factors in the process of social adaptation. It also shows—and this is perhaps more important—how such forces, and such unrecognised collusion, may be a main source of difficulty in implementing agreed plans for social development and for social change.[2]

---

[1] Fritz J. ROETHLISBERGER : " The Foreman : Master and Victim of Double Talk ", in *Human Factors in Management* (London, Macdonald & Evans, 1948), pp. 60-61.

[2] Elliot JAQUES : *The Changing Culture of a Factory* (London, Tavistock Publications Ltd., 1951). The quotation is from p. *xvii* of the introduction by A. T. M. WILSON.

One aspect of group behaviour to which particular attention has been directed is that relating to "restriction of output". While it has been customary to blame trade unions for this practice, the studies suggest that it must be explained on a much broader basis. It has been shown that restriction of output is practised not only by organised workers but also by unorganised workers, including top executives inspired by a variety of motives not limited to personal convenience. This suggests that the practice is the result of various forces, which must be understood in their totality if the problem is to be attacked at its root. Some of these forces are, of course, economic in origin—fear of rate-cutting, speed-up and unemployment. Others are the result of unsound relations between management and men or individual grievances and personality traits. But even where conditions are otherwise favourable, there is evidence that employees may tend to restrict output—

> . . . These employees had never encountered those unfavourable economic experiences to which the response of "restriction" is usually attributed. Their output standards had not been raised or their piece rates lowered; they gave no indication of work fatigue; they exhibited no strong hostilities toward management, no resentment against alleged management inefficiencies. Thus, their behaviour emerged for the investigators not as "economic" but as "sociological" in genesis—responses to strong sentiments which cemented the individual at work to his informal but cohesive work group and, through it, to the whole structure of the company.[1]

Organisation and Administration

Much work has been done on the human problems connected with organisation and management. Some of the studies have revealed new aspects of organisation, which are of considerable importance to human relations in industry. It has been shown, for example, that an analysis of the work flow is just as essential to proper understanding of human relationships as a study of supervisory and staff relationships. In each plant there is a characteristic sequence of operations or work stream, and the workers engaged in the whole process are regarded as linked in a chain of work-flow relationships. It has been

[1] Benjamin M. and Sylvia K. SELEKMAN: "Productivity and Labor Relations", in *Harvard Business Review*, Vol. XXVII, No. 3, May 1949, p. 379.

shown that the proper flow of work is no less vital to good morale than an efficient " chain of command ".

One of the main problems of organisation is that of overcoming the difficulties arising from size. In smaller units, employees have better opportunity to know each other, so that co-operation can develop on a more personal and informal basis ; they can see more readily where they fit into the organisation and realise the significance of their jobs in the whole structure. This fact has led to a study of the possibilities of administrative decentralisation, of which geographical distribution is only one aspect.[1] As one writer has put it, the essential aim is—

> the placing of authority and responsibility as close as possible to the scene of action and permitting a wide range of discretion to those at each level of the system . . . The issuance of an official policy or the redrawing of an organisation chart cannot bring about decentralisation if higher executives . . . set up rigid controls which allow too little leeway for those at the scene of operations. The essence of decentralisation is an *attitude of mind*, a willingness on the part of those at higher levels of authority to permit their subordinates an adequately broad range of discretion.[2]

That managements must acquire new insight into human relations in their plants is, of course, the principal theme of the new approach and of recent studies of management functions. The new " administrator " will need to know and understand better the nature of his business as a social organisation. He will have to learn to recognise the world of feelings as well as the world of facts and logic. " Only by paying as much attention to informal organisation as to formal organisation will he become aware of what can and cannot be accomplished by policy formulation at the concrete level of behaviour. " [3]

The need for clear and sound personnel policies is also emphasised by recent studies. These are necessary in an organisation because management cannot deal with each employee solely as an individual. The development and execution of personnel policies require continuous attention and the establishment of a special staff (the personnel or industrial relations

[1] For a discussion of the general subject of decentralisation, see Hyacinthe DUBREUIL : " Industrial Organisation Based on Autonomous Groups ", in *International Labour Review*, Vol. LXIV, No. 4, October 1951, p. 285.

[2] James C. WORTHY : " Factors Influencing Employee Morale ", in *Harvard Business Review*, Vol. XXVIII, No. 1, January 1950, p. 69.

[3] Fritz J. ROETHLISBERGER, *op. cit.*, p. 71.

department). The question, however, arises whether such a special staff should participate actively in the decision-making process or whether it should be limited to advisory functions, and many studies of this question have been made on the basis of actual experience.

The general consensus seems to be that the personnel function is the concern of the line. In order to provide assistance to the line, " service " units such as industrial relations or personnel administration departments are valuable adjuncts, however. These service units should operate in a staff capacity and should perform advisory functions only. Decisions based on their advice should be a function of the line personnel. The reasons for this are several. First, in terms of attitudes it indicates that top management has not shunted this important responsibility to a " side " department. Second, with respect to channels of responsibility it means there is less opportunity for divided authority; an employee does not answer to his foreman in one area, say production, and to a personnel administrator in another, such as discipline.[1]

The degree of participation by the staff in the process of policy or decision making is indeed a vital problem. Some writers have stressed that the authority of an order does not depend merely on the status of the person issuing it but also on its acceptance by the individual to whom it is addressed. Once it is recognised that authority in factory management only exists to the extent that orders are actually carried out, the whole question of relations between management and workers appears in quite a different light. It becomes important to consider how far consultation with those affected by the orders will result in their being more effectively carried out. Realisation of this fact by managements has already led to more frequent consultation with supervisors in the formulation of policies.

Leadership and Supervision

With the growing size and complexity of companies and trade unions the problem of selecting, developing and training suitable leaders has become of crucial importance. In the case of companies, the problem is particularly significant in view of the impact of leadership upon labour-management relations. Bad leadership can easily generate an unhealthy

[1] John G. TURNBULL : *Labor-Management Relations* (New York, Social Science Research Council, 1949), p. 44.

social and psychological climate—distrust, frictions, antagonisms—within an organisation. Cases have been known where faulty leadership has precipitated simple differences of opinion into open conflicts or violent disputes.

In a number of surveys it has been shown that successful leadership is much more dependent on administrative skills in human relationships or the ability to handle people than on technical or specialised knowledge of the work. According to a survey of the Carnegie Institute of Technology, only 13 per cent. of a businessman's success depends on technical knowledge while 87 per cent. is due to his skill in human relationships. The results of this and similar surveys have emphasised the importance of leadership training for executives and group leaders, such as foremen and shop stewards.

Much research work has been done on leadership training, both with respect to the content and to methods of training. The results of research studies have been used in the development of the "job relations" course in T.W.I. programmes and will no doubt lead to further improvement of such courses. In addition to the familiar method of class and group discussion, experiments have been made with the individual interview approach and the method of role playing. Each method appears to have its own sphere of usefulness—the group method can be used where interaction between the group and the individual exists, and the individual approach is indicated where inter-personal relationships within the group have disintegrated.

An important aspect of the general problem of supervision is the role of the foreman. Within the last decades the foreman has been reduced to an anomalous position. He is required to know more about a lot of things than his old-time counterpart, to relate himself to more people and to be responsible in more ways, but he is hemmed and hedged in on every side. The status of the middle supervisory groups has been the subject of much study, and an attempt has been made to redefine the foreman's authority, responsibility and relationships with superiors, specialised staffs, co-foremen, subordinates and union representatives, so as to enable him to exercise effective leadership in his group.

Some of the difficulties arising from large size may be attacked from the angle of supervision. This was illustrated

in a study of human relations in an expanding company undertaken by the Yale Labor and Management Center, which involved an appraisal of the techniques employed by a large corporation in meeting the double problem of expanded employment and transition from one method of production to another. It was found that the disturbing effects of such changes had to a considerable extent been reduced by decreasing the number of levels of supervision, decreasing the number of subordinates for each supervisor and increasing supervisory job content to include responsibility for personnel problems.[1]

Communication

Communication has come to be recognised as a vital aspect of organisation and as a significant factor in industrial relations, and the problem now figures prominently in many human relations research projects. In a recent study carried out by the Yale Labor and Management Center it was found that, in a company with a previous history of comparatively satisfactory relations, a major management decision had brought on a crisis, partly because of faulty communication between management, on the one hand, and the workers and the union, on the other.[2]

The principal result of research on this subject has been to emphasise the need for a two-way system of communication between management and workers as a substitute for the loss of direct personal contact between them. In practice, this means that the union must be integrated into the plant organisation as a channel for such two-way communication.

> In every plant where a labour union is recognised as the representative of the employees the union should be given the authority and should assume the responsibility of acting as an effective communications link from workers to management and from management to workers . . . After full acceptance as a goal, two-way communication calls for much intelligent work within the ranks of management and for like intelligent effort, coupled with sound democratic procedures, in the ranks of labour.[3]

---

[1] See Frederick L. W. RICHARDSON and Charles R. WALKER: *Human Relations in an Expanding Company* (New Haven, Conn., Yale Labor and Management Center, 1948).

[2] Charles R. WALKER: *Steeltown* (Yale Labor and Management Center, 1950).

[3] *Partners in Production: A Basis for Labor-Management Understanding.* A Report by the Labor Committee of the Twentieth Century Fund (New York, Twentieth Century Fund, 1949), p. 147.

Many studies have been devoted to the question of content —what management ought to be saying to the worker, the union, the foreman—and to matters of technique—bulletin boards, letters, films, public address systems, meetings, employee magazines, and also attitude survey methods to find out who reads or listens to messages and what changes in ideas and feelings result. Such devices as the suggestion system, joint consultation and employee participation in decision making, while mainly established for the purpose of serving other functions, are also considered effective channels of communication, particularly from the union and workers to management.

Employee Morale

The subject of employee morale, a term often applied to the degree of job satisfaction among the members of a working group, covers a very large area in the study of human relations in industry. As previously indicated, the factors of organisation, administration, leadership, supervision and communication all have something to do with the development of employee morale. Other obvious factors are wages, security, working conditions, chances of promotion, the handling of grievances, opportunity to use ability, etc. There are also factors connected with life away from work—welfare and recreational facilities, trade union activities, and social, economic and political conditions.

Various methods have been evolved for carrying out an " attitude survey " in individual establishments. Though the primary object of such surveys is to provide the management with a guide to its successes and failures in personnel matters, they also help to relieve tensions and to improve morale by showing that management is really interested in the welfare of the workers. It is, however, pointed out that while these surveys are of great practical value in enabling management to deal with incipient grievances before they become explosive, they are never substitutes for the more continuous day-to-day means of keeping management adequately informed concerning the attitudes of its employees. Moreover, the material obtained by such methods is always fragmentary and must be combined with other types of information and knowledge.

Apart from their value to the managements of particular companies, attitude surveys may disclose information of general value. In fact, many of the new insights into employee morale have been acquired from surveys of employees of individual establishments.

Some studies indicate that when a given level of employee morale is reached, the factors that have contributed to it tend to reinforce each other and to set in motion a kind of " circular reaction " which tends to keep good morale good and poor morale poor.

> If employees are discontented with any phase of their relations with management, they are likely to seize upon and magnify any inconveniences arising from their physical surroundings . . . Where annoyances are apparently unnecessary, employees are likely to interpret the condition as evidence of management's lack of concern for them as people. It is against this attitude that employees rebel . . .
>
> In those cases where the company already enjoyed good morale . . . benefit plans were well received because they were an additional evidence of a management attitude . . . in which they [the employees] had confidence. In those cases where morale was poor, however, the benefit plans were received with suspicion and distrust and as probable evidence that management was trying to pull some kind of " fast trick ".[1]

With the transfer of the major responsibility for getting higher wages from individual employees to trade unions and with the gains achieved by collective action in this respect, wages have come to be taken for granted by many employees and have ceased to occupy an important place in their thinking. This has been shown in a number of surveys, in which many employees considered wages as of relatively minor importance among the factors that influence their attitude towards management and their jobs. Wages, of course, continue to be important in a negative sense, because unreasonable or static wage rates are a real source of trouble. But apart from this, the question of improving employee morale hinges more and more on other factors.

This fact has led to increasing emphasis on indirect incentives: better personnel policies and supervision, a more attractive working environment, increased welfare and recrea-

[1] James C. WORTHY: " Factors Influencing Employee Morale ", *op. cit.*, pp. 65-6.

tion facilities, etc. However, the most important field for improvement is that of the " human environment ". This means that ways and means will have to be found of increasing the workers' opportunities for creative expression and identification with their work. This is likely to be a very difficult task, since much of the work in the modern factory is bound to be monotonous and repetitive. It is therefore inevitable that human frustrations will develop and be expressed in varying patterns of behaviour. The first essential is that this behaviour should be recognised as proceeding from very real causes, and that it should not be dismissed as merely " illogical ".

Technological Change

One of the main uses of scientific understanding is the prediction of the reaction of workers to a desired change and the planning of the change with a view to their anticipated reaction. This is particularly true in the case of technological changes which, as said earlier, always disturb to a greater or less extent the social equilibrium of a working group.

Something is already known of the causes of workers' resistance to change. After a change, whether it involves a transfer of employees to new jobs or merely modifications of work methods on present jobs, there is a marked drop in morale and production, which is the result of social and psychological factors rather than of the technical difficulties of relearning. Much of the anxiety and disorganisation which accompanies change is due to the dislocation of the system of habits which have provided a stable framework for the worker's daily tasks. Apart from methods of reducing the shock by gradually accustoming the workers to new plant or equipment, comparisons have been made between three methods of introducing changes to the staff: *(a)* the non-participation method in which employees were simply told what changes were taking place in the factory: *(b)* the group-representative method in which decisions concerning the change were made by the workers' representatives in conjunction with the management; and *(c)* the total participation method in which all persons to be affected by the change were given an opportunity to participate directly in the discussion. In terms of morale, the most favourable reaction was found

in the group which had fully participated in the decisions; in terms of production also, the findings showed that the return to the previous standard was most rapid in that group and least rapid in the non-participating group.

Union-Management Relations

Current research in union-management relations consists mainly in historical, descriptive, comparative and analytical studies of collective bargaining experience, practices and procedures, or of particular aspects or elements of the relationship. While similar studies have been made in the past, the more recent work is characterised by greater attention to the complexity of the social, economic, psychological and political factors involved in union-management interactions. As the relationships are between large, dynamic organisations, the problems are much more complex and formidable than those related to group functioning.

Whereas earlier studies mostly dealt with situations of conflict, there is a new tendency to shift the accent to cases where mutually satisfactory relationships have been achieved. The project of the National Planning Association in the United States on the causes of industrial peace under collective bargaining is a notable example of this tendency. The British Institute of Management has begun a similar study involving the experience of organisations enjoying high output and good union-management relations. Mention may also be made of the studies conducted in recent years by the Industrial Relations Section at Princeton University and by the Industrial Relations Institute of the University of Illinois.

In these studies it is assumed that the trade union is a useful and necessary social institution and an instrument of democracy in industry. In addition to its economic functions, it helps the workers to find satisfaction for social and psychological needs that cannot be met in their work. Moreover, like any other social institution, it strives to maintain and strengthen itself; it is therefore likely to be permanent. This being so, the real question is how to improve the trade union as a social institution. The aim must be to "integrate the union into the social structure of the enterprise so that it

plays a definite and positive role " instead of being an outside critic, and to bring about " a situation in which both union and management officials think in terms of functions and responsibilities, rather than in terms of rights and privileges." [1]

Patterns of Union-Management Interactions

When describing union-management relations as " good " or " bad ", the absence of industrial disputes or the occurrence of occasional strikes is not now considered a decisive criterion. Peace may be secured by a paternalistic attitude on the part of management or because one party is powerful enough to impose its will upon the other. These, however, are abnormal situations which block full expression by at least one party and keep the seeds of conflict growing underneath.

> There is always danger that power will be challenged by power . . . that paternalism will be swept aside by an increasing resentment. Neither one is wholesome or tolerable in a society predicated on the dignity of man and the principle of freedom.[2]

Among the factors that affect the pattern of union-management interactions are the practices and history of the past; customs, ethnic, racial and religious characteristics; the relative strength of the union and management; the nature and extent of legal intervention; ideological compatibility between the parties; the general economic situation of the industry and the firm; the size, organisation and location of the firm; union and management policies and attitudes; the personalities of the leaders; technological conditions; etc. The pattern is normally the result of the interplay of various factors, although a given factor may in certain conditions be of particular importance.

The case studies of the National Planning Association in the United States have revealed significant parallels with respect to the combination of factors that have contributed to industrial peace.

---

[1] Lloyd G. REYNOLDS: " The Role of a University in Industrial Relations ", in *The Universities and Industrial Relations* (Montreal, Industrial Relations Centre, McGill University, 1949), p. 16.

[2] Vernon H. JENSEN: *Heritage of Conflict* (Ithaca, N.Y., Cornell University Press, 1950), p. *viii*.

(1) There is full acceptance by management of the collective bargaining process and of unionism as an institution. The company considers strong unions as an asset to management.

(2) . . . they [the unions] recognise that the welfare of their members depends upon the successful operation of the business.

(3) The unions are strong, responsible, and democratic.

(4) The company stays out of the union's internal affairs; it does not seek to alienate the workers' allegiance to their unions.

(5) Mutual trust and confidence exist between the parties. There have been no serious ideological incompatibilities.

(6) Neither party to bargaining has adopted a legalistic approach to the solution of the problems in the relationship.

(7) Negotiations are "problem-centred"—more time is spent on day-to-day problems than on defining abstract principles.

(8) There is widespread union-management consultation and highly developed information-sharing.[1]

Substantially similar conclusions were reached in the study conducted by the Industrial Relations Section at Princeton University. In one of the firms covered by the study, the following factors were found, among others, to have contributed to constructive relationships between the union and management: (1) the development of increased strength on the part of the union; (2) the emergence of capable and compatible leadership on both sides; (3) the conviction of the company that industrial relations and employee welfare are of major importance; (4) the flexibility of each side in reaching compromises of traditional positions, in abandoning rigid mental patterns, and in patiently awaiting the ultimate attainment of a satisfactory adjustment of differences.[2]

In many studies, attention is drawn to the relative merits of the "problem-solving" approach and that based on fixed principles or strict legalism. The problem-solving approach is considered the superior method because it emphasises the two-sided character of collective bargaining and the necessity of resolving issues rather than winning cases.

---

[1] Statement of the N.P.A. Committee on the Causes of Industrial Peace under Collective Bargaining, in Case Study No. 9, by George W. ZINKE (Washington, D.C., National Planning Association, 1951), pp. *xi-xii*.

[2] See Richard A. LESTER and Edward A. ROBIE: *Constructive Labor Relations* (Princeton University, N.J., 1948), pp. 38-40.

The Evolutionary Character of Union-Management Relations

The factors that affect the pattern of union-management interactions operate within a framework of dynamically evolving relationships. If the attitude of one party is unfavourable, this produces a reaction on the other: fear begets fear, distrust breeds distrust, hostility invites hostility. On the other hand, when one party makes an effort to compromise and to understand the other's point of view, it may find a responsive chord in the other.

It is often said that management gets the kind of trade union it deserves. The implications of various management attitudes toward the union have been summarised as follows:

(1) Management is determined not to recognise the union or to get rid of it by any available means. This means, of course, open warfare.

(2) Management accepts the union for the time being, but still wants to hold open the possibility of getting rid of it at some future date. This leads to undeclared war.

(3) Management accepts the union as here to stay, but nevertheless the executive continues to function as much as possible as if the union were not present. The union, not consulted, often simply blocks action.

(4) Management accepts the union, both intellectually and emotionally. Management modifies its behaviour accordingly and the union reciprocates.[1]

Many studies have emphasised the previous history of the parties as a significant conditioning factor in the formation of their attitudes and in the development of their future relationships. This is particularly true where there have been violent conflicts which engender resentments and antagonisms that are carried forward through the years.[2]

The commencement of collective relations is considered a particularly dangerous period and one fraught with many possibilities for misunderstanding. The campaign to organise

---

[1] Willard KERR and Bertram GOTTLIEB: "An Experiment in Industrial Harmony", in *Proceedings of the Third Annual Conference*, Industrial Relations Research Association, Chicago, December 1950, p. 352.

[2] A particularly detailed study of the long history of conflict in the non-ferrous metals industry in the United States has been made by Vernon H. JENSEN, *op. cit.*

the union will have engendered an atmosphere of hostility and brought all the elements of conflict into the open. For the first time, the authority of management to decide policies unilaterally is challenged and its usual reaction is one of fear and resentment. Having no previous experience in mutual dealings, the parties have nothing to guide them and the negotiations tend to be a battle over rights and principles combined with a general airing of grievances. The degree of mutual understanding reached during these early negotiations is likely to influence their future relationships for a long time.

From such beginnings, the relationships of the parties may develop into and pass through varied patterns or structures. With the seasoning influence of time and experience, and sometimes after costly errors and sacrifices, the parties' attitudes undergo changes which are echoed in the character of their relationship. Where there has been mutual acceptance, the parties may simply deal with each other as realists of the market place, each seeking primarily " to exact at any given time from the other the full measure of gains for its side made possible by economic conditions and the balance of bargaining power ".[1] As mutual acceptance grows, the relations may develop into one of accommodation or regular co-operation.

Administration of the Agreement

Studies of the problems of administering the agreement indicate that their importance is often overlooked, though they have considerable significance from the point of view of human relations. In contrast to the activity at the bargaining table with the tensions and emotions that it usually evokes, the administration of the agreement is devoid of dramatic interest and tends to be a humdrum affair. Nevertheless, it is this daily activity of living under the agreement that contributes above all else to sound industrial relationships. The tensions and emotions that find expression at the bargaining table often originate from satisfactions and dissatisfactions with the way that the agreement has been implemented hitherto.

---

[1] Benjamin M. SELEKMAN : " Some Implications and Problems of Collective Bargaining ", in *The New Industrial Relations* (Ithaca, N.Y., Cornell University Press, 1948), p. 55.

The day-to-day administration of a collective agreement may involve many matters of great complexity. In a changing economy new questions will constantly arise that were not foreseen when the contract was negotiated. Where different agreements apply to the different groups in the undertaking, there may be many problems due to the interaction of the agreements. The essential aim must therefore be to find and train capable administrators.

Disputes over the application and interpretation of the terms of an agreement will, of course, be submitted to an arbitrator, court or other outside agency. However—

> unlike litigants in court, the parties in a collective labour agreement must continue to live with each other during the dispute and thereafter . . . A labour dispute submitted to arbitration is not a controversy as to a past transaction, like the typical law suit in which each litigant desires to win and, win or lose, wind up the litigation and have nothing more to do with the matter. A labour dispute submitted to arbitration is a mutual problem which affects the future relations of the parties and the smooth operation of their enterprise . . . An award which does not solve the problem, and with which the parties must nevertheless live, may become an irritant instead of a cure.[1]

Thus, while there is need for an authority to which legal disputes can be submitted for final decision, what is more important is the manner in which the parties deal with these disputes at shop level. The parties themselves have a fuller understanding of the problem and of the relevant factors than any outside person, and they can appreciate better how a possible solution will impinge upon the future development of their relationships.

Conclusion

The study of human relations in industry is still largely in the process of development. It has opened up a frontier of knowledge of still undefined limits, whose vast hinterland appears at this stage in imposing but indistinct outlines. It has already made significant contributions and this encour-

[1] Harry Shulman, in his preface to *Opinions of the Umpire* (privately printed for the Ford Motor Company and the United Automobile Workers, February 1946).

ages the hope that further explorations will yield more fruitful and substantial results. It is no longer possible to ascribe failures in human relations in industry to the vagaries of an incomprehensible human nature ; somewhere there must be a relationship of cause and effect which may be brought to light by diligent search and enquiry.

The study of human relations gives scientific support to one of the fundamental principles underlying the International Labour Organisation—that labour should not be regarded as a mere commodity. Though this principle is couched in negative terms, it clearly means that the worker should be treated as a human being—as a complete human being with economic, psychological and social needs. The achievement of this aim involves much more than questions of wages and employment conditions ; it involves every aspect of working life, which occupies so great a part of the employee's waking hours, and even aspects of his life away from the place of work. While it is comparatively easy to win theoretical recognition of the worker's dignity and worth as an individual, practical results in the varied situations of industrial life cannot be obtained without study and effort.

From the point of view of the climate of public opinion, the study of human relations in industry is not without significant implications. It may be expected that, when the human factor becomes the object of so much attention, there will be changes in the general attitude towards the worker. Recognition of the human needs of the worker is important not only in industrial relations but also in the general beliefs and culture of the society in which he lives. The worker needs this powerful social sanction for the improvement of his social and material conditions. As long as the community places him in an inferior position in society and as long as he or his union strives in a hostile or indifferent social climate, it will be difficult to obtain such improvement.

Input-Output Analysis as an Aid to Manpower Policy

by

James BURTLE
International Labour Office

The various industries in a modern society buy from and sell to each other as well as supplying products for the ordinary consumer. By means of a recently developed technique, known as input-output analysis, it is possible to simplify this maze of transactions and obtain a bird's-eye view of the whole economy of a nation.

This technique has practical value in a field which is of considerable concern to the International Labour Organisation—that of manpower supply and full employment. The following article, describing the essential features of the method in non-technical language and indicating its uses in forecasting labour requirements, has therefore been specially prepared for the Review.

ONE of the principal aims of manpower policy is to balance the labour requirements of industry and the actual composition of the labour force. If this is not done there may not be enough workers available for urgently needed jobs, while at the same time there may be too many workers available for other jobs. It is difficult to maintain this balance in the employment market because it is necessary to foresee not only the direct but also the indirect changes in the demand for workers in different occupations and different places which are likely to result from changes in demand for finished goods. It is easy to see, for example, that an increase in the demand for aeroplanes may result in labour shortages in the

aircraft industry and that a recruitment and training programme may need to be launched for that industry. But such a programme might be quite inadequate because the output of other industries would also have to be expanded as an indirect consequence of the increased demand for aeroplanes. Labour shortages might therefore arise in sectors of the economy other than the aircraft industry.

Because of the complicated inter-industry relationships through which the output of one industry is indirectly dependent on the output of other industries, it becomes extremely difficult to find all the spots in the economy that are likely to face manpower shortages. Some of the more important of these relationships between industries are discussed below; and from this discussion it will be appreciated how difficult it is to appraise the total impact on all sectors of the economy of an increased demand for any final output and how useful, therefore, may be the comparatively new technique of input-output analysis, which is designed to work out such an appraisal.

Inter-Industry Relationships

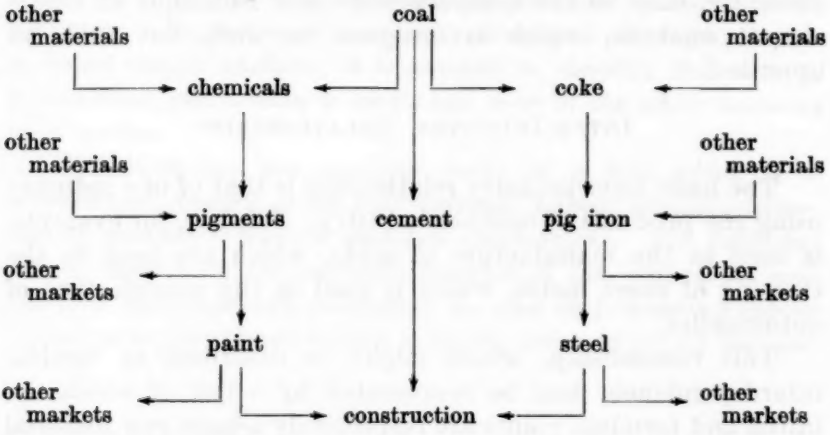
The basic inter-industry relationship is that of one industry using the products of another industry. Sulphur, for example, is used in the manufacture of acids, which are used in the treating of sheet metal, which is used in the manufacture of automobiles.

This relationship, which might be described as vertical interdependence, may be represented by a line of which the initial and terminal points are respectively a basic raw material and a finished product, with points on the line representing intermediate products. Thus, for example, one might represent the relationship between coal production and the production of meat as follows:

coal
↓
power
↓
nitrates
↓
fertiliser
↓
grain
↓
livestock
↓
meat

Another line might be drawn to show the movement of wood-pulp to rayon to yarn to cloth to clothing. In the same way it would be possible to illustrate all the vast number of other lines of vertical interdependence between industries whose output is contingent on the output of raw materials or semi-finished products from other industries.

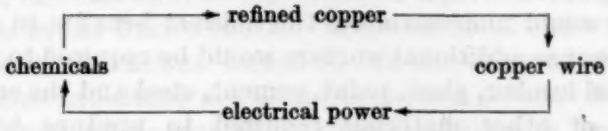
Most industries are buyers as well as sellers in relation to many other industries. The steel industry, for example, buys coal, iron ore, limestone, manganese and a wide range of other raw materials ; it also sells its output to a wide range of other industries, including the automobile, machinery, shipbuilding and construction industries. In some industries, moreover, the same final output will result in several separate lines of vertical interdependence leading back to a so-called basic industry. These tendencies may be illustrated by the relationship between construction and coal.



While it may be easy to predict the effects of a construction programme on the output of steel, paint and cement, it is much more difficult to trace back several lines of vertical interdependence in an attempt to find out the indirect effect of more construction on the output of coal and of all other basic materials.

Even more complicated relationships arise when the output of an industry is fed back into the beginning of a line of vertical interdependence leading to that industry. The manufacture of electric power, for example, requires copper wire for which refined copper is needed ; but the manufacture of

the refined copper itself requires chemicals, which in turn require electrical power, as is indicated in the following diagram :



The line of vertical interdependence has thus become a line of circular interdependence. It is interesting to note that under conditions of economic disorganisation (such as may arise, for example, from destruction in time of war) circular lines of interdependence are particularly liable to break down because a shortage of one product in the line may result in other shortages which, in an indirect way, make the original bottleneck more difficult to overcome.

A complete diagram of all the lines of vertical interdependence in an economy would therefore appear as an enormous network spreading out from a relatively small number of so-called basic industries through a multitude of processing industries to a great variety of finished products. The network would be further complicated by the circular relationships described above.

The gains, in terms of human welfare, which arise in societies where this complicated network of inter-industry relationships is found are indeed enormous, as may be seen from a comparison of their standard of living with that of societies where—even though natural resources may be potentially large—each family must grow and process its own food, make its own clothes, build its own house and supply all its other needs. But the economically developed economy has to pay something for its obvious advantages over other economies. The very complexity of inter-industry relationships makes them difficult to see as a whole.

It is consequently difficult to appraise all the effects of a policy which changes the output of a particular industry. The industry in question will change the volume of its purchases from other industries, which will in turn change their purchases from other groups of industries—and so on, in ever-increasing indirectness, throughout the economy. Suppose, for example, that there are unemployed workers in the construction industry. A government might decide to inaugurate a building pro-

gramme. The effects on economic welfare of this decision could not be adequately appraised by estimating the number of workers who would be hired on the building site. Such an analysis would underestimate the indirect benefits to employment, because additional workers would be required to produce additional lumber, glass, paint, cement, steel and the enormous number of other materials required to produce buildings. Further waves of employment would then be created in the industries which produce crude raw materials used in the making of building materials, such as coal in the manufacture of steel and cement, or chemicals in the manufacture of glass and paint. In order to make a more adequate appraisal of the results of policies of this kind, some method must be worked out to see the main outlines of an economy all at once without neglecting sectors that are indirectly but nevertheless substantially affected by the economic policy under consideration. Input-output analysis is perhaps the most promising method for solving this and related problems.

The Input-Output Table

Although the foundations in economic theory for a method of seeing all sectors of an economy at the same time were worked out in the nineteenth century by Léon Walras, the first practical application of these principles was made by Professor W.W. Leontief of Harvard University.[1] This method of disentangling inter-industry relationships is known as input-output analysis. It involves the use of rather large tables, such as those reproduced (after p. 610) as tables I and II for the economy of the United States in 1947 and table III for the Netherlands economy in 1948. Table IV is a somewhat simpler input-output table for Denmark.[2] The principal sectors

[1] Cf. W. W. Leontief : *The Structure of the American Economy, 1919-1939* (New York, Oxford University Press, 1951).

[2] An input-output table of the United Kingdom for 1935 has been prepared by Dr. Tibor Barna and will appear in *The Journal of the Royal Statistical Society* (London), Vol. 115, Part I, 1952. In Italy the Mutual Security Agency in co-operation with the Istituto Centrale di Statistica is preparing an input-output table of Italy for 1950.

The tables reproduced in this article are given as an illustration of the materials used for input-output analysis. They must be interpreted with great caution and direct international comparisons, in particular, should be avoided. There are three principal reasons why data from these tables must be used with extreme care : *(a)* The different tables are based on different

of economic activity in these economies are shown both across the top and down the left side of each table. In table I, for example, the first 45 rows and columns represent the principal industries in the United States. These are listed twice because, as a result of various forms of interdependence described above, most industries are both buyers and sellers. The table has the great advantage of making it possible to look at all industries at once, both in their roles as buyers and in their roles as sellers.

In order to explain the use of this table one may begin with the last column under the heading " total gross output ". This shows the total value of sales of each industry—$44,263 million for " agriculture and fisheries ", $37,636 million for " food and kindred products ", etc. The figures in this column include both the sales of each industry to other industries and sales for final use.[1] In order to produce these goods and services, each of the industries had to make purchases from other industries. These purchases are indicated in the columns of the table. For example, in the column headed " agriculture and fisheries " are shown the purchases of establishments in that industry from other sectors of the economy—$10,856 million from other establishments in " agriculture and

---

concepts of what aspects of an economy may be included in an input-output table. The table of the Netherlands, for example, includes certain statistics of money transfers which have no counterpart in the movement of commodities. It takes into account such items as redistribution of profits and certain financial transactions of insurance companies which do not necessarily affect the movement of commodities. *(b)* When the same title appears in the rows or columns of different tables it may be defined in quite different ways in each table. In some cases a term will be given a quite unusual meaning. For example, in the tables for the United States the row " rent " includes the rent which it is estimated that home owners would have paid if they did not own the houses in which they lived. There are innumerable other cases in which terms are defined in rather special ways which may not be the same in all the tables. *(c)* The data which are shown in these tables are subject to wide margins of error. They are not always based on censuses, sample surveys or other direct sources of information. Some of the figures in these tables consist of estimates from incomplete information which may be quite inaccurate.

[1] In the computation of the figures in this column, reallocations were made for goods and services which are not " primary " to the industries which produced them, *i.e.*, which according to the Standard Industrial Classification are usually produced in some other industry. For example, the value of coal which was produced by establishments in the steel industry is included under coal rather than steel. The figures in this column also include inventory depletions of products primary to the industry, wherever held, and " competitive imports ", that is, imported goods which have a domestically produced counterpart.

fisheries ", $2,378 million from " food and kindred products ", $64 million from " textile mill products ", $44 million from " apparel ", etc.[1] Below the heavy horizontal line is shown what was done with the receipts of " agriculture and fisheries " which were not used to make purchases from other industries [2] —$2,660 million for the using up of stocks as is indicated by the title " inventory change (depletions) ", $690 million to foreign countries for imports, $813 million to the government (mainly for taxes) and $19,166 million for wages and salaries, interest payments, depreciation charges, profits and other payments to entrepreneurs, contributions, and various other minor income payments as is indicated by the title " households ".[3] The column under " agriculture and fisheries " therefore shows how the " agriculture and fisheries " industry used up the $44,263 million shown under " gross total output ", which it received for all of its sales. These funds were either spent on purchases from other industries as shown above the heavy horizontal line in the " agriculture and fisheries " column, or their use is explained by imports, taxes, wages and salaries, profits and various other kinds of income payments and accounting allowances which are shown in the same column below the heavy horizontal line. The total of the expenditures shown in this column ($44,263 million) is, of course, equal to the figure for the total sales of " agriculture and fisheries " in the " total gross output " column.

This " total gross output " of the " agriculture and fisheries " industry will change whenever final demand changes.

---

[1] In addition to this information the input-output table of the Netherlands for 1948 (table III) shows the extent to which each purchase consisted of raw materials and the value which was added to the raw materials by fabrication. (The figures under R represent raw materials and the figures under V represent value added.) For example, the construction industry's purchases from the metal, shipping, aircraft, and automobile industries were valued at 208 million guilders, of which 196 million guilders consisted in raw materials and 12 million guilders consisted in value added.

[2] It is of course possible to give a more detailed breakdown of these figures below the heavy horizontal line than is shown in table I. This is done in table III for the Netherlands : the income of consumers is broken down into social charges, wages and salaries, profits and entrepreneurs' income, pensions, leave pay and benefits, and imputed interest. This table includes, however, certain financial transactions that are omitted from tables for the United States and Denmark.

[3] In the United States input-output table, rent is placed in a separate row and a separate column. The rent row represents rental receipts and the rent column represents the sums paid by owners of buildings to various other industries for maintenance services.

"Final demand" is the demand for a commodity for some use other than for use in the production of any other commodity, and therefore differs from gross output because it does not include the value of deliveries between industries. The categories of final demand are listed in the upper right-hand corner of the table under the following headings:

Households: The consumption of non-investment goods and services. Below this title are listed, in value terms, the products of each industry which were sold to consumers. As may be seen from the table, households consumed the following amounts from the following industries (in millions of dollars):

Agriculture and fisheries	9,785
Food and kindred products	22,141
Tobacco manufacturers	1,485
Textile mill products	1,469
Apparel	9,987
etc.	*etc.*

Gross Private Capital Formation: Housing, other construction, machinery and various types of equipment of a more durable character than consumers' goods.

Inventory Change: Gross additions to stocks on hand in factories, warehouses or stores.

Government: Goods and services used by the government.

Foreign countries: Exports abroad.

Whenever there is an increase in production of goods or services for any of these categories of final demand, requirements for the production of raw materials and intermediate products are also increased. As was indicated above, there will be repercussions of a more and more indirect character on the output of many other sectors of the economy. This movement of commodities may then be traced back from industry to industry through lines of vertical interdependence to the earliest stages of production.

By dividing each separate expenditure of the "agriculture and fisheries" industry to other industries by the adjusted value of its total expenditure ($41,603 million) [1],

[1] The figures for total gross outlay are adjusted by subtracting inventory changes (row 46) from them. This adjustment is made in order to show the output which results from activities in other industries to the exclusion of that which is due to changes in stocks. In the case of "agriculture and fisheries" $2,660 million was subtracted from $44,263 million to get an adjusted gross outlay figure of $41,603 million.

the percentage distribution of expenditures by the " agriculture and fisheries " industry may be found. For example, out of every dollar of expenditure by the " agriculture and fisheries " industry, about .261 dollars (10,856÷41,603) went to other establishments in the same industry, about .057 dollars (2,378÷41,603) to the " food and kindred products " industry, about .0015 dollars (64÷41,603) to the textile mill products industry, and so on.[1]

Each of the industries to which the " agriculture and fisheries " industry makes an expenditure will in turn make expenditures. Here only one secondary wave of spending will be considered. To the " chemicals " industry, the " food and kindred products " industry devoted about 3.9 per cent. of its expenditure. If constant proportions among expenditures prevailed, an increase of final demand of $1 million for the products of the " agriculture and fisheries " industry would result, via the " food and kindred products " industry, in an indirect increase in payments to the chemical industry of .22 per cent. (.057 × .039) or about $2,200 out of every million dollars originally expended to " agriculture and fisheries ".

In addition to these primary and secondary effects there would likewise be tertiary effects (as, for example, the expenditure to other industries by the " chemicals industry " of the funds which it had received from the " food and kindred products " industry as a direct result of the increased final demand for the products of " agriculture and fisheries "), and even more indirect effects would follow. The exact consequences which would result from a given increase in final demand can, under certain conditions, be estimated by simultaneous equations, a mathematical procedure of which a very simplified example is illustrated below.

The Method of Simultaneous Equations

This method is best explained by reference to a hypothetical economy. Suppose that in a primitive community there are only two industries : agriculture and chemicals. Some of the

[1] A table of these percentages may be obtained from the United States Bureau of Labor Statistics, Division of Interindustry Economics.

output of agriculture is sold to the chemical industry and some of the output of the chemical industry is sold to agriculture. The rest of the output of each of these industries is sold to households for final use. It is further assumed that what are known as " fixed technical coefficients " prevail, that is, that the amount of input (in value terms) required in making an output is a fixed proportion of the output. In this very much simplified example it will be supposed that for every 100 dollars' worth of agricultural output it is necessary to use 20 dollars' worth of products from the chemical industry, giving a technical coefficient between agriculture and chemicals of .2 (20÷100); and that for every 100 dollars' worth of chemicals output it is necessary to use 50 dollars' worth of products from agriculture, giving a technical coefficient between agriculture and chemicals of .5 (50÷100).

The problem to be solved is as follows: if a certain amount is spent on agricultural products by households and a certain amount is spent on chemical products by households, what will be the total volume of sales of each sector? Suppose that 50 million dollars are spent on chemicals for final use and 100 millions on agriculture for final use. The output of chemicals will be equal to the purchase of chemical products for final use plus one-fifth of output of agriculture or, if C and A are adopted as symbols for chemical output and agricultural output respectively and the calculations are made in units each of which is equal to one million dollars,

$$C = 50 + \frac{A}{5}$$

since the output of the chemicals sector consists in its sales for final use (50) and its sales to agriculture, which are in this simplified case equal to one-fifth of agricultural output or $\frac{A}{5}$. Similarly—

$$A = 100 + \frac{C}{2}$$

since the sales of agriculture to households were 100 and it also sold to chemicals an amount equal to one-half of the value of chemical production. There are consequently the following equations with the two unknowns, A and C:

$$\begin{cases} C = 50 + \frac{A}{5} \\ A = 100 + \frac{C}{2} \end{cases}$$

These equations may be solved with the following results:

C = 77.778, of which 50 millions was for final use and the remainder of 27.778 millions (77.778 — 50.000) was sold to agriculture; and

A = 138.889, of which 100 millions was for final use and the remainder of 38.889 millions (138.889 — 100.000) was sold to the chemicals industry.

These results in a miniature input-output table would be as follows:

From / To	C	A	Final demand	Total gross output
C		27.778	50	77.778
A	38.889		100	138.889
Households [1] (income)	38.889	111.111		150.000
Total gross outlay	77.778	138.889	150	366.667

[1] Income going to households is the difference between the value of sales (*i.e.* total gross output) and purchases of materials.

Suppose that an export market for chemicals develops and 20 million dollars' worth of chemicals are exported. We will assume that neither technical coefficients nor domestic purchases for final use change. A new column must be added for exports and final demand for chemicals increases from 50 to 70. In addition, however, the output of chemical products and agricultural products will change because the increased output of chemical products will require increased purchases of agricultural products, which will in turn require increased purchases of chemical products, and so on. The two equations become—

$$\begin{cases} C = 70 + \frac{A}{5} \\ A = 100 + \frac{C}{2} \end{cases}$$

TABLE I

Industry Producing	1 Agriculture and fisheries	2 Food and kindred products	3 Tobacco manufactures	4 Textile mill products	5 Apparel	6 Lumber and wood products	7 Furniture and fixtures	8 Paper and allied products	9 Printing and publishing	10 Chemicals	11 Products of petroleum and coal	12 Rubber products	13 Leather and leather products	14 Stone, clay and glass products	15 Iron and steel	16 Nonferrous metals	17 Plumbing and heating supplies	18 Fabricated structural metal products	19 Other fabricated metal products	20 Agric., mining and const. machinery	21 Metalworking machinery	22 Other
1. Agriculture and fisheries	10,856	15,048	783	2,079	19	192	–	9	–	1,211	–	–	49	*	–	11	–					
2. Food and kindred products	2,378	4,910	15	60	9	*	30	*	685	*	–	444	2	3	*	–						
3. Tobacco manufactures	–	–	826	–	–	–	–	–	–	1	–	–	–	–	–	–						
4. Textile mill products	64	2	–	1,303	3,882	3	285	43	25	13	2	444	88	33	–	–	*					
5. Apparel	44	204	–	–	1,963	–	5	20	–	30	–	–	2	3	–	–	*					
6. Lumber and wood products	148	81	18	18	2	1,094	385	267	1	45	6	–	17	17	36	28	23					
7. Furniture and fixtures	–	–	–	12	–	–	7	5	–	–	–	–	–	–	–	–	*					
8. Paper and allied products	2	453	65	78	25	5	15	2,597	1,081	331	112	20	54	179	*	*	9					
9. Printing and publishing	–	39	–	2	–	–	–	–	767	16	–	–	–	–	–	–	1					
10. Chemicals	830	1,451	25	800	142	26	63	183	97	2,655	213	604	126	116	99	85	21					
11. Products of petroleum and coal	457	58	*	30	5	74	1	63	3	325	4,829	12	2	50	846	49	7					
12. Rubber products	122	9	–	13	18	9	6	9	3	1	1	41	50	8	*	*	2					
13. Leather and leather products	–	–	–	2	53	4	7	–	4	–	–	–	1,037	–	–	–	*					
14. Stone, clay and glass products	65	253	1	1	*	14	34	28	–	258	46	7	5	430	180	33	9					
15. Iron and steel	6	2	–	–	1	10	97	–	–	5	6	14	1	23	3,982	33	172					
16. Nonferrous metals	–	–	–	–	–	2	16	–	14	189	1	*	*	13	324	2,599	94					
17. Plumbing and heating supplies	–	–	–	–	–	–	–	–	–	–	–	–	–	–	15	–	39					
18. Fabricated structural metal products	–	–	–	–	–	–	5	–	–	–	–	–	–	–	7	–	19					
19. Other fabricated metal products	83	543	15	*	6	35	132	17	1	130	78	12	16	4	24	4	72					
20. Agric'l, mining and const. machinery	59	–	–	–	–	–	–	–	–	–	–	–	–	5	15	7	–					
21. Metalworking machinery	–	–	–	–	–	–	–	–	–	–	–	–	–	–	8	7	6					
22. Other machinery (except electric)	–	13	–	35	21	14	11	14	35	1	5	–	–	2	27	4	110					
23. Motors and generators	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	34					
24. Radios	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	*	1					
25. Other electrical machinery	–	–	–	–	–	–	–	–	–	1	–	–	–	7	8	46	53					
26. Motor vehicles	111	3	–	–	–	1	–	–	–	–	*	–	–	1	*	*	–					
27. Other transportation equipment	10	–	–	–	–	–	–	*	–	1	*	*	–	*	2	1	–					
28. Professional and scientific equipment	–	–	–	–	–	–	2	6	32	13	–	–	–	1	*	–	34					
29. Miscellaneous manufacturing	4	11	–	4	256	1	16	15	–	29	–	*	22	9	5	*	1					
30. Coal, gas and electric power	61	193	4	105	36	24	18	123	29	188	556	37	15	204	242	104	13					
31. Railroad transportation	440	548	21	94	60	143	54	224	68	287	270	36	36	145	423	100	19					
32. Ocean transportation	73	126	3	13	11	9	*	16	*	44	94	*	1	14	30	52	*					
33. Other transportation	553	367	16	79	25	138	40	117	25	95	470	7	21	70	140	19	6					
34. Trade	1,360	418	38	228	369	60	60	176	31	173	19	55	57	52	216	140	36					
35. Communications	2	41	1	9	19	10	6	8	39	23	15	6	5	10	16	6	3					
36. Finance and insurance	238	145	1	20	24	77	18	18	23	18	125	7	7	46	44	14	6					
37. Rental	2,393	91	2	25	96	19	17	26	61	34	–	10	19	18	36	21	4					
38. Business services	8	533	98	71	97	19	57	22	58	424	42	21	49	11	25	5	16					
39. Personal and repair services	368	119	*	3	3	42	4	4	20	11	13	1	1	31	3	3	1					
40. Medical, educ. and nonprofit org's	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–					
41. Amusements	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–					
42. Scrap and miscellaneous industries	–	–	–	24	–	–	–	250	–	110	–	7	–	13	650	456	6					
43. Undistributed	–	2,059	132	438	1,310	880	329	201	610	1,740	788	329	323	570	287	101	21					
44. Eating and drinking places	–	–	–	–	–	–	–	–	2	–	–	–	–	–	–	–	–					
45. New construction and maintenance	199	117	1	39	16	12	7	42	15	36	26	12	19	34	81	20	1					
46. Inventory change (depletions)	2,660	402	1	120	185	*	14	87	26	140	8	3	33	2	3	102	–					
47. Foreign countries (imports from)	690	2,001	104	208	279	183	6	621	8	594	258	2	35	143	43	573	*					
48. Government	813	1,134	104	639	376	338	112	497	335	762	780	114	136	323	573	245	86					
49. Gross private capital formation	DEPRECIATION AND OTHER CAPITAL CONSUMPTION ALLOWANCES ARE INCLUDED IN HOUSEHOLD ROW																–					
50. Households	19,166	6,262	387	3,286	4,013	2,564	1,063	2,161	3,034	3,431	4,907	1,024	1,140	2,255	3,945	1,519	629					
Total gross outlays	44,263	37,836	2,663	9,838	13,321	6,002	2,892	7,899	6,447	14,050	13,670	2,825	3,810	4,844	12,338	6,387	1,74					

Source: U.S. Bureau of Labor Statistics, Division of Interindustry Economics: *Summary of Interindustry Transac*
The Interindustry Relations Study for 194

TABLE I. INPUT-OUTPUT, UNITED STATES, 1947

(In millions of dollars)

Industry Purchasing

	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
	Other fabricated structural metal products	Agric., mining and const. machinery	Metalworking machinery	Other machinery (except electric)	Motors and generators	Radios	Other electrical machinery	Motor vehicles	Other transportation equipment	Professional and scientific equipment	Miscellaneous manufacturing	Coal, gas and electric power	Railroad transportation	Ocean transportation	Other transportation	Trade	Communications	Finance and insurance	Rental	Business services	Personal and repair	Medical
	*	–	11	–	–	–	–	–	–	–	–	–	–	–	4	4	–	5	1	8	–	2
	2	3	*	–	–	*	–	–	*	–	–	*	–	–	5	21	1	81	6	34	71	9
	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	*	–	–	*	–	–
	33	–	–	*	*	8	2	1	18	2	9	36	147	9	47	76	8	–	8	7	27	*
	3	–	–	*	–	1	*	–	2	–	*	*	100	10	2	*	*	*	*	3	15	1
	17	36	28	23	5	34	15	4	67	3	10	41	46	33	5	65	60	–	5	1	28	*
	–	–	–	*	–	–	–	–	5	–	102	1	26	20	1	–	*	–	–	*	–	*
	179	*	*	9	5	79	2	2	39	4	17	48	33	20	75	69	4	2	–	4	568	2
	–	–	–	1	–	11	2	1	5	–	1	5	–	–	2	–	*	36	4	20	98	33
	116	99	65	21	18	88	17	5	62	10	9	178	111	22	55	167	55	32	5	20	73	3
	50	846	49	7	3	12	9	4	24	1	2	18	31	11	2	8	471	270	87	448	200	2
	8	*	*	2	2	5	75	2	53	2	2	31	496	12	5	37	1	1	–	130	63	1
	–	–	–	*	*	1	3	11	7	*	*	1	13	3	8	10	*	–	–	2	2	–
	430	180	33	9	6	52	7	10	57	23	7	92	192	6	26	59	17	12	1	2	37	*
	23	3,982	33	172	553	1,374	532	143	930	118	13	196	1,102	370	16	35	44	153	–	6	–	1
	13	324	2,599	94	63	272	24	23	366	40	26	654	176	62	55	170	6	45	–	2	–	*
	–	15	–	39	41	7	–	–	35	1	–	32	8	6	–	–	*	–	–	–	–	–
	–	7	–	19	42	18	33	1	67	*	–	9	10	31	1	–	*	7	–	1	–	–
	4	24	4	72	90	213	93	67	326	28	63	211	956	62	68	38	5	26	5	7	59	1
	5	15	7	–	23	–	115	20	96	–	–	–	3	14	–	–	28	3	–	*	–	–
	–	8	7	6	9	53	51	57	90	7	6	19	223	12	8	*	–	8	–	1	–	–
	2	27	4	110	43	41	307	68	565	50	2	82	402	195	26	3	6	47	–	12	8	–
	–	–	–	34	7	1	32	29	317	17	5	52	–	51	10	–	1	5	–	4	–	–
	–	–	*	1	–	13	–	–	4	8	243	95	19	15	4	–	–	–	–	–	3	1
	7	8	46	53	9	125	22	16	158	57	165	350	599	53	21	18	17	30	–	8	6	49
	1	*	*	–	–	32	24	7	*	–	–	12	4,401	*	–	–	8	*	–	131	20	*
	*	2	1	–	–	–	–	–	–	*	–	–	12	295	–	–	*	38	76	132	–	–
	1	*	–	34	3	3	1	2	36	2	3	9	70	23	176	24	*	–	–	2	–	*
2	9	5	*	1	1	18	*	1	45	20	30	61	22	3	26	156	2	4	5	4	10	*
5	204	242	104	13	15	52	23	14	68	8	6	39	62	28	10	25	1,272	443	4	91	493	10
6	145	423	100	19	37	77	44	12	100	11	13	50	228	37	14	31	151	410	3	58	75	5
1	14	30	52	*	*	*	*	*	*	–	*	*	1	*	2	10	*	–	218	–	–	–
1	70	140	19	6	5	17	10	3	29	3	8	19	67	13	5	14	35	195	35	253	311	3
7	52	216	140	36	54	110	51	22	183	18	34	83	56	74	39	48	40	30	6	423	202	7
5	10	16	6	3	6	13	6	4	23	3	4	13	16	10	6	9	18	18	2	42	326	66
7	46	44	14	6	14	19	11	7	32	7	9	23	22	21	6	18	48	24	120	298	1,002	5
9	18	36	21	4	10	20	6	6	32	2	9	19	21	20	11	35	46	24	7	147	1,961	52
9	11	25	5	16	10	25	12	11	64	3	25	32	76	10	51	57	9	22	2	33	1,706	86
1	31	3	3	1	4	3	2	1	5	*	*	1	3	2	1	4	16	11	5	264	1,415	16
	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	*	*	–	–
	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
	13	650	456	8	4	3	9	6	38	1	*	3	–	–	1	–	–	–	–	35	386	10
3	570	287	101	211	172	1,000	356	250	1,463	45	204	822	490	406	227	1,049	356	61	214	73	2,320	88
	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	11	–	–
9	34	81	20	5	5	24	16	6	28	2	7	16	44	23	7	18	265	1,118	1	134	182	178
3	2	3	102	–	*	3	*	*	4	–	*	2	7	8	47	157	*	–	–	–	–	–
5	143	43	573	*	1	6	35	1	16	1	1	2	15	11	54	141	7	41	302	33	–	33
6	323	573	245	86	113	277	167	86	514	64	62	274	656	120	134	191	1,142	1,075	256	766	3,750	344
IN	HOUSEHOLD ROW			–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
0	2,255	3,945	1,519	624	943	2,335	1,178	930	4,339	534	595	2,092	3,303	1,880	856	1,989	5,066	5,675	914	6,205	26,240	2,165
0	4,844	12,338	6,367	1,745	2,316	6,445	3,292	1,833	10,312	1,095	1,692	5,723	14,265	4,001	2,119	4,756	9,205	9,952	2,292	9,855	41,657	3,173

* Less than $500,000

nterindustry Transactions, 1947 (Washington, December 1951). For a discussion of some of the conceptual problem
ations Study for 1947 (Washington, U.S. Bureau of Labor Statistics, Division of Interindustry Economics, 1951).

39	40	41	42	43	44	45	46	47	48	49	50	Business services	Personal and repair services	Medical, educ. and nonprofit org's	Amusements	Scrap and misc. industries	Undistributed	Eating and drinking places	New construction and maintenance	Inventory change (additions)	Foreign countries (exports to)	Government	Gross private capital formation	Households	Total gross output
surance																									
8	–	2	–	–	–	–	116	–	–	250	865	92	1,008	1,276	569	21	9,785	44,263
34	71	9	–	–	–	2	251	*	9	134	3,469	2	608	1,528	728	–	22,141	37,636
*	–	–	–	–	–	–	–	–	7	45	–	–	77	217	3	–	1,485	2,663
7	27	*	–	–	*	29	4	–	15	580	–	47	61	919	101	21	1,469	9,838
3	15	1	–	–	–	20	16	*	12	150	21	1	214	301	193	1	9,987	13,321
1	28	*	–	135	1	*	1	–	17	444	5	2,330	174	170	14	36	67	6,002
*	–	*	41	78	–	–	4	–	–	199	–	198	78	35	52	569	1,459	2,892
4	568	2	1	–	2	62	26	–	145	836	57	170	44	154	59	–	344	7,899
20	98	33	213	–	2,234	27	173	13	321	585	30	–	*	72	156	89	1,491	6,447
20	73	3	*	–	7	198	222	2	30	1,181	42	635	305	812	186	–	1,964	14,050
448	200	2	15	780	*	57	56	1	8	357	15	617	56	680	177	*	2,437	13,670
130	63	1	7	*	–	71	4	–	5	468	4	56	94	168	21	8	709	2,825
2	2	–	–	–	–	34	6	–	14	283	–	1	108	84	30	17	2,065	3,810
2	37	*	–	–	–	25	6	–	3	363	59	1,741	99	205	17	15	341	4,844
6	–	1	–	–	–	–	–	–	130	719	–	876	57	605	13	–	–	12,338
2	–	*	–	–	–	–	*	–	21	524	2	315	98	167	5	–	19	6,387
–	–	–	–	–	–	–	–	–	7	106	–	878	64	42	7	60	397	1,745
1	–	–	–	–	–	–	–	–	9	248	–	1,564	15	67	4	145	13	2,316
7	59	1	–	–	1	32	6	–	46	1,138	24	652	127	280	38	74	537	6,445
*	–	–	–	–	–	57	*	–	11	261	–	116	105	566	82	1,640	66	3,292
1	–	–	–	–	–	–	–	–	6	264	–	–	17	205	11	734	31	1,833
12	8	–	16	–	–	146	1	–	53	1,717	–	338	288	990	84	3,450	1,080	10,312
4	–	–	–	–	–	3	–	–	10	257	–	3	33	85	11	128	–	1,095
–	3	1	–	–	*	23	–	–	2	74	–	–	56	113	83	296	639	1,692
8	6	49	–	–	5	62	4	–	25	608	–	716	161	244	76	1,331	673	5,723
131	20	*	–	*	–	1,054	*	–	70	671	1	36	401	1,020	151	2,982	3,128	14,265
132	–	–	–	–	–	2	–	–	14	456	–	1	18	324	1,245	1,203	171	4,001
2	–	*	–	–	7	52	176	–	6	229	–	22	32	184	79	260	630	2,119
4	10	*	–	–	149	164	46	53	112	638	21	32	43	187	85	511	1,934	4,756
91	493	10	63	3,016	5	307	163	54	–	23	219	30	27	355	195	–	133	9,205
58	75	5	6	422	27	29	52	2	10	798	253	706	74	590	332	266	2,061	9,952
–	–	–	–	–	–	–	–	–	5	2	–	–	–	1,340	126	–	102	2,292
253	311	3	4	125	29	14	190	2	6	1,102	97	572	38	314	186	103	3,860	9,855
423	202	7	43	747	135	386	292	7	80	808	1,061	2,506	149	987	45	2,336	27,107	41,657
42	326	66	85	62	429	123	66	11	–	83	11	44	–	38	148	–	1,269	3,173
298	1,002	5	1,851	555	22	118	93	26	–	–	72	400	–	135	32	–	6,993	12,814
147	1,961	52	211	208	58	710	402	180	–	–	386	84	–	–	223	804	20,289	28,855
33	1,706	86	143	37	64	121	17	95	–	421	55	134	–	3	38	–	179	5,097
264	1,415	16	113	25	68	559	76	22	30	2,294	228	819	–	–	83	271	7,333	14,301
*	–	–	16	–	–	–	85	–	–	350	–	–	–	–	5,078	–	7,856	13,385
–	–	–	–	–	–	–	7	392	–	14	–	–	–	128	–	–	2,403	2,944
35	386	10	106	34	20	1	1	13	–	12	–	1	–	30	1	–	–	2,233
73	2,320	88	617	547	575	1,303	960	269	–	–	536	–	–	–	–	–	–	24,711
11	–	–	–	–	–	–	152	–	–	1,030	–	–	–	–	–	–	12,075	13,270
134	182	178	32	4,084	3	56	342	25	–	–	73	7	–	–	5,464	5,709	154	28,704
–	–	–	–	–	–	–	–	–	851	–	–	–	–	22	–	–	–	4,887
33	–	33	105	–	–	–	–	3	69	12	–	–	–	–	1,313	–	1,325	9,275
766	3,750	344	1,111	3,997	212	503	170	318	74	2,176	1,410	470	73	831	3,458	216	31,308	63,685
–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
205	26,240	2,165	8,015	14,003	1,044	7,951	9,199	1,456	–	1,801	4,254	11,492	–	847	30,058	218	2,116	220,474
855	41,657	3,173	12,814	26,855	5,097	14,301	13,385	2,944	2,233	24,711	13,270	28,704	4,802	17,320	51,060	33,514	191,625	769,248

ceptual problems involved in making this table cf. W. Duane EVANS and Marvin HOFFENBERG: nomics, 1951).

TABLE II. REQUIREMENT

(Each Entry Shows, Per Dollar of Deliveries to Final Demand b

	1 Agriculture and fisheries	2 Food and kindred products	3 Tobacco manufactures	4 Textile mill products	5 Apparel	6 Lumber and wood products	7 Furniture and fixtures	8 Paper and allied products	9 Printing and publishing	10 Chemicals	11 Products of petroleum and coal	12 Rubber products	13 Leather and leather products	14 Stone, clay and glass products	15 Iron and steel	16 Nonferrous metals	17 Plumbing and heating	18 Fabricated str	19 Other	2
1 Agriculture and fisheries	.41445	.09706	.00010	.00612	.00295	.00889	.00060	.00955	.00597	.04648	.03699	.00591	.00087	.00549	.00843					
2. Food and kindred products	.67525	1.20488	.00034	.01022	.01002	.01229	.00121	.04052	.02000	.08977	.03274	.00592	.00210	.01552	.02189					
3. Tobacco manufactures	.62025	.05661	1.45172	.00787	.00261	.02255	.00127	.07578	.03709	.05067	.02689	.00560	.00221	.00652	.01886					
4. Textile mill products	.37946	.04421	.00032	1.16140	.00215	.00998	.00250	.03258	.01529	.14143	.02924	.00579	.00210	.00687	.01467					
5. Apparel	.14820	.02393	.00054	.41081	1.17786	.00962	.00224	.03063	.01881	.08166	.02197	.00787	.00988	.00721	.02259					
6. Lumber and wood products	.01708	.01228	.00061	.01028	.00217	1.23069	.00202	.02161	.01451	.03072	.04268	.00802	.00480	.00966	.03061					
7. Furniture and fixtures	.08395	.01486	.00061	.12572	.00430	.17350	1.00448	.03564	.02522	.06584	.03174	.00855	.00705	.02205	.09189					
8. Paper and allied products	.02759	.01523	.00059	.01691	.00613	.06819	.00195	1.52213	.02288	.05975	.03754	.00509	.00236	.01066	.02284					
9. Printing and publishing	.01922	.00968	.00049	.01428	.00250	.01806	.00162	.30502	1.15324	.04689	.01891	.00309	.00378	.00629	.02058					
10. Chemicals	.20918	.09197	.00079	.01339	.00627	.01667	.00203	.07617	.03785	1.27195	.07006	.00679	.00398	.03329	.05263					
11. Products of petroleum and coal	.01358	.00707	.00035	.00591	.00135	.00674	.00117	.03252	.01077	.04423	1.56855	.00407	.00214	.01023	.01917					
12. Rubber products	.11527	.03211	.00064	.19426	.00509	.01070	.00213	.04667	.02319	.31339	.03860	1.02087	.00369	.01815	.03406					
13. Leather and leather products	.16890	.20874	.00054	.05007	.00421	.01757	.00179	.08752	.02367	.10036	.02405	.02432	1.38213	.01112	.02594					
14. Stone, clay and glass products	.02098	.00994	.00052	.01718	.00281	.01406	.00184	.07946	.01340	.05434	.03946	.00684	.00306	1.10363	.02975					
15. Iron and steel	.01235	.00701	.00063	.00614	.00193	.01219	.00086	.03331	.03129	.03433	1.17714	.00348	.00278	.02867	1.50707					
16. Nonferrous metals	.01817	.00767	.00109	.00671	.00236	.01685	.00080	.04045	.04141	.04591	.04073	1.00344	.00326	.01492	.04864					
17. Plumbing and heating supplies	.01969	.00971	.00074	.01102	.00245	.02754	.00214	.03785	.02529	.04692	.04668	.00745	1.00421	.01831	.21406					
18. Fabricated structural metal products	.01337	.00703	.00058	.00716	.00174	.01165	.00133	.02667	.01969	.03354	.03958	.00531	.00292	1.01520	.40546					
19. Other fabricated metal products	.02079	.01051	.00081	.01260	.00284	.01846	.00226	.04878	.02468	.04951	.05967	.00748	.00452	.02292	1.36351					
20. Agricultural, mining and const. machinery	.01845	.00903	.00068	.01433	.00227	.01594	.00184	.02737	.02067	.04049	.05268	.03012	.00531	.01522	1.30956					
21. Metalworking machinery	.01597	.00900	.00065	.01013	.00212	.01189	.00187	.02592	.01866	.02914	.03535	.00720	.01200	.01623	1.17067					
22. Other machinery (except electric)	.01878	.00932	.00073	.01341	.00251	.01879	.00257	.03337	.02195	.03621	.04050	.01184	.00807	.01777	1.19466					
23. Motors and generators	.01308	.00621	.00043	.00952	.00138	.01193	.00167	.02577	.01471	.03367	.03572	.00563	.00272	.03227	1.20052					
24. Radios	.02522	.01055	.00071	.02756	.00259	.03220	.07309	.04751	.02662	.04475	.02726	.00850	.00454	.01746	1.07024					
25. Other electrical machinery	.02752	.01236	.00079	.02012	.00270	.02166	.00351	.04484	.02427	.07553	.03694	.01255	.00452	.03028	1.10609					
26. Motor vehicles	.02753	.00998	.00053	.03929	.01374	.01598	.00428	.03195	.01972	.05795	.04685	.05619	.00306	.03364	1.23514					
27. Other transportation equipment	.01637	.00772	.00057	.01358	.00511	.02046	.00734	.02977	.01587	.03214	.03873	.00851	.00430	.01167	1.19355					
28. Professional and scientific equipment	.03480	.01537	.00058	.03874	.00308	.01440	.00220	.08670	.02913	.06525	.02344	.00808	.00914	.02365	1.06227					
29. Miscellaneous manufacturing industries	.04000	.02093	.00088	.03445	.00316	.03017	.00275	.05570	.02521	.08407	.02848	.01638	.00847	.02477	1.04898					
30. Coal, gas and electric power	.00708	.00351	.00020	.00414	.00070	.01191	.00066	.00878	.00521	.01790	.10012	.00220	.00123	.00513	.01818					
31. Railroad transportation	.00932	.01176	.00009	.00148	.00042	.00200	.00028	.00627	.00838	.01016	.05573	.00121	.00049	.00332	.03125					
32. Ocean transportation	.01365	.00869	.00039	.01047	.00147	.00853	.00167	.01445	.01201	.01913	.07633	.00400	.00244	.00508	.02218					
33. Other transportation	.00961	.00719	.00017	.00819	.00120	.00269	.00066	.01017	.01067	.01472	.08019	.01603	.00114	.00268	.01324					
34. Trade	.00868	.00589	.00032	.00574	.00158	.00583	.00106	.03764	.03262	.01462	.01885	.00443	.00188	.00400	.01304					
35. Communications	.00667	.00538	.00016	.00270	.00092	.00248	.00065	.01319	.03005	.00801	.00606	.00161	.00091	.00188	.00758					
36. Finance and insurance agents	.00564	.00296	.00028	.00418	.00088	.00396	.00450	.01644	.03591	.00926	.00868	.00282	.00153	.00232	.01061					
37. Rentals	.00354	.00183	.00012	.00220	.00042	.00873	.00316	.00569	.00481	.00632	.05664	.00123	.00072	.00172	.00641					
38. Business services	.01928	.01018	.00066	.01341	.00262	.01405	.00213	.15162	.52394	.03905	.01933	.00657	.00445	.00744	.02651					
39. Personal and repair services	.01601	.00775	.00042	.01333	.00414	.00736	.00183	.02531	.01728	.03946	.02507	.01341	.00616	.00927	.03724					
40. Medical and educational organizations	.03876	.03254	.00029	.00613	.00278	.00484	.00133	.01923	.02311	.03495	.01916	.00348	.00255	.00453	.01241					
41. Amusements	.00991	.00535	.00043	.00664	.00143	.00621	.00151	.02014	.03407	.01675	.01525	.00392	.00263	.00430	.01666					
42. Scrap and miscellaneous industries	.03763	.02227	.00746	.03082	.01346	.03844	.00187	.25351	.28465	.07231	.05139	.01256	.01805	.01597	.20186					
43. Nondistributed	.06850	.03663	.00311	.04508	.01008	.03585	.00990	.08861	.05349	.10188	.05940	.02777	.01915	.02862	.11519					
44. Eating and drinking places	.27438	.32435	.00028	.00690	.00544	.00743	.00106	.02753	.01653	.03865	.02294	.00438	.00180	.01150	.01511					

Source : U.S. Bureau of Labor Statistics, Division of Interindustry Economics : *Inte*

REQUIREMENTS PER DOLLAR OF FINAL DEMAND, UNITED STATES, 1947

Final Demand by Industry at Left, Total Dollar Production Directly and Indirectly Req

17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35
nferrous metals	Plumbing and heating supplies	Fabricated structural metal products	Other fabricated metal products	Agric'l, mining and const. machinery	Metalworking machinery	Other machinery (except electric)	Motors and generators	Radios	Other electrical machinery	Motor vehicles	Other transportation equipment	Professional and scientific equipment	Miscellaneous manufacturing	Coal, gas and electric power	Railroad transportation	Ocean transportation	Other transportation	Trade
teel																		
lass products																		
cts																		
.00591	.00067	.00549	.00843	.00465	.00021	.00046	.00810	.00267	.00071	.00379	.00058	.00025	.00199	.00964	.00163	.00062	.00201	.0202
.00592	.00210	.01552	.02160	.01258	.00068	.00146	.02858	.00267	.00194	.01109	.00179	.00068	.00521	.01111	.00335	.00177	.00585	.0245
.00560	.00221	.00652	.01882	.01124	.00071	.00151	.01961	.00263	.00194	.01126	.00187	.00069	.00524	.01073	.00331	.00198	.00662	.0187
.00579	.00210	.00687	.01467	.01135	.00060	.00126	.01010	.00207	.00158	.01357	.00166	.00055	.00425	.00832	.00274	.00158	.00525	.0280
.00787	.00988	.00721	.02215	.01656	.00104	.00222	.01432	.00276	.00271	.01950	.00265	.00096	.00716	.01136	.00429	.00267	.03101	.0201
.00802	.00480	.00966	.03011	.01755	.00123	.00262	.02219	.00309	.00324	.02182	.00333	.00114	.00841	.01415	.00534	.00286	.00791	.0178
.00855	.00705	.02205	.09148	.03324	.00135	.00442	.06327	.00309	.00350	.02313	.00327	.00120	.00919	.01308	.00494	.00357	.01449	.0246
.00509	.00236	.01066	.02241	.01167	.00079	.00146	.01317	.00183	.00172	.01317	.00191	.00060	.00509	.00965	.00318	.00288	.01081	.0391
.00509	.00378	.00629	.02026	.01724	.00092	.00191	.01214	.00225	.00235	.02072	.00259	.00083	.00630	.00975	.00362	.00857	.00718	.0207
.00679	.00399	.03329	.03262	.04715	.00130	.00271	.02915	.00348	.00339	.01984	.00337	.00119	.00925	.01462	.00549	.00441	.01285	.0378
.00407	.00214	.01023	.01937	.01101	.00070	.00151	.01782	.00193	.00189	.01158	.00190	.00066	.00514	.00844	.00403	.00168	.00468	.0818
.02067	.00369	.01515	.03400	.02297	.00119	.00251	.02162	.00307	.00308	.01877	.00313	.00108	.00813	.01270	.00485	.00308	.00901	.0352
.02432	.38213	.01112	.02507	.01702	.00105	.00223	.02281	.00277	.00276	.01634	.00276	.00098	.00729	.01167	.00439	.00265	.01619	.0218
.00684	.00306	.10363	.02973	.01957	.00100	.00210	.01343	.00375	.00258	.01592	.00266	.00093	.00847	.01142	.00442	.00262	.00886	.0662
.00348	.00276	.02887	.50757	.07982	.00286	.00260	.01451	.00421	.00302	.01573	.00235	.00072	.00768	.01209	.00394	.00190	.01124	.0542
.00344	.00326	.01492	.04869	.72290	.00128	.00192	.01360	.00459	.00387	.01449	.00259	.00106	.01994	.01455	.00404	.00203	.01413	.0446
.00745	.00421	.01831	.21406	.13746	.02509	.01496	.06536	.00432	.00827	.09059	.02679	.00272	.04633	.01409	.00504	.02512	.01216	.0292
.00531	.00292	.01520	.40547	.08526	.02001	.02089	.06537	.01365	.00767	.03745	.00668	.00109	.01360	.01085	.00374	.00391	.00856	.0305
.00748	.00452	.02292	.36337	.11394	.00324	.00617	.05386	.00412	.01275	.02963	.00443	.00413	.03244	.02242	.00556	.00380	.01379	.0335
.03012	.00531	.01522	.30959	.05462	.00222	.01415	.05124	.04070	.02123	.12279	.01718	.00152	.01977	.02369	.00470	.00349	.00979	.0292
.00720	.01200	.01623	.17067	.05330	.00167	.00395	.05614	.01519	.03636	.06116	.02116	.00157	.02066	.01860	.00463	.00415	.00942	.0244
.01184	.00507	.01777	.19489	.09920	.00548	.01014	.05345	.01389	.01379	.08180	.03719	.00234	.02977	.01408	.00510	.00726	.01520	.0261
.00563	.00272	.03227	.20050	.10035	.00198	.00225	.04031	.00267	.00997	.06124	.01991	.01074	.06481	.00817	.00286	.00400	.02625	.0259
.00850	.00454	.01746	.07028	.08043	.00218	.00335	.07011	.00347	.00869	.02475	.00825	.01159	.13263	.01461	.00536	.00618	.03302	.0218
.01255	.00452	.03028	.10607	.23827	.00780	.00491	.06035	.00396	.00820	.03877	.01437	.02213	.08039	.01820	.00549	.00540	.02281	.0287
.05619	.00506	.03364	.23514	.07869	.00267	.00379	.11825	.00365	.02748	.06070	.00499	.00465	.07550	.45745	.00511	.01035	.01126	.0295
.00851	.00430	.01167	.19321	.06058	.00337	.01123	.03444	.00732	.00723	.07363	.01887	.00626	.02566	.01101	.08386	.00952	.00930	.0252
.00808	.00914	.02365	.05225	.07351	.00131	.00325	.05242	.00297	.00795	.03190	.00870	.00387	.02143	.01162	.00433	.09550	.02324	.0209
.01638	.00847	.02477	.04896	.09061	.00174	.00361	.02971	.00422	.00454	.02677	.00456	.00166	.01633	.01725	.00635	.00993	.04664	.0227
.00220	.00123	.00513	.01816	.00774	.00041	.00087	.00619	.00464	.00110	.00717	.00120	.00040	.00509	.00565	.00174	.00091	.00273	.1170
.00121	.00049	.00332	.03120	.01319	.00025	.00120	.00575	.00102	.00138	.00809	.00132	.00025	.00506	.00242	.00524	.00046	.00178	.0598
.00400	.00244	.00508	.02217	.01189	.00085	.00196	.01276	.00205	.00217	.01404	.00263	.00090	.00586	.00843	.04263	.00208	.00727	.0116
.01603	.00114	.00268	.01325	.00598	.00032	.00072	.00646	.00087	.00115	.00689	.00138	.00044	.00419	.02577	.01588	.00121	.00291	.0220
.00443	.00188	.00400	.01304	.00767	.00056	.00113	.00841	.00150	.00144	.00901	.00145	.00067	.00442	.01046	.00217	.00161	.00599	.0260
.00161	.00091	.00188	.00755	.00759	.00038	.00061	.00447	.00072	.00079	.00470	.00091	.00109	.01894	.00376	.00109	.00091	.00312	.0087
.00282	.00153	.00232	.01062	.00628	.00048	.00098	.00575	.00119	.00119	.00879	.00127	.00044	.00334	.00611	.00176	.00130	.00402	.0126
.00123	.00072	.00172	.00642	.00342	.00023	.00049	.00333	.00095	.00060	.00372	.00063	.00022	.00189	.00285	.00106	.00054	.00165	.1281
.00657	.00445	.00744	.02659	.02100	.00127	.00264	.01604	.00309	.00324	.02229	.00342	.00136	.01107	.01457	.00497	.00759	.03962	.0185
.01341	.00616	.00927	.03724	.01934	.00102	.00200	.02156	.00655	.00426	.02794	.00302	.00311	.01638	.11946	.00346	.00685	.01848	.0416
.00348	.00255	.00453	.01247	.00917	.00058	.00123	.00867	.00152	.00157	.00929	.00161	.00059	.00453	.00703	.00249	.01593	.00768	.0247
.00392	.00263	.00430	.01666	.01184	.00081	.00170	.00971	.00207	.00207	.01253	.00214	.00078	.00569	.00924	.00314	.00221	.02803	.0390
.01256	.01805	.01597	.20188	.06946	.00686	.00926	.05800	.01173	.00943	.06239	.01198	.00337	.03335	.08626	.01489	.00970	.09317	.0276
.02777	.01915	.02862	.11519	.07589	.00613	.01312	.07072	.01474	.01583	.09403	.01635	.00556	.03994	.06038	.02399	.01407	.03685	.0293
.00438	.00180	.01150	.01511	.00926	.00056	.00119	.01465	.00191	.00155	.00911	.00149	.00058	.00431	.00978	.00258	.00149	.00620	.0371

rindustry Economics: *Interindustry Transactions, 1947, Direct and Indirect Requirements per Dollar of Final Dem*

, 1947

ndirectly Required from Industry at Top)

33	34	35	36	37	38	39	40	41	42	43	44
ean transportation	Other transportation	Trade	Communications	Finance, insurance agents	Rentals	Business services	Personal and repair services	Medical and educ. organizations	Amusements	Scrap and miscellaneous industries	Nondistributed	Eating and drinking places
nsportation												
ic power												
ot												
00062	00201	02021	02369	00371	02564	05322	00230	01588	08725	00723	01973	00046	00002	00242	03106	00133
00177	00585	02450	03849	00679	03206	04944	00578	01624	04841	02645	02500	00161	00007	00516	11164	00472
00198	00662	01870	03222	00380	02899	05657	00846	01152	04394	06504	02235	00171	00008	00586	11934	00504
00158	00525	02808	02804	00359	02455	05178	00462	01054	03068	01901	01706	00140	00007	00750	09722	00410
00267	03101	02091	02546	00295	02088	06269	00642	00984	02509	02266	02349	00262	00012	00610	18308	00769
00286	00791	01789	04556	00299	04466	03081	00543	02393	01404	01258	03396	00310	00014	00483	21592	00909
00357	01449	02481	04442	00206	03557	04884	00792	01673	01760	03189	02686	00287	00013	01041	20036	00843
00288	01081	03915	05702	00461	03423	04853	00461	01038	01235	01197	01438	00121	00005	05210	08406	00357
00857	00718	02079	03256	00145	02011	02553	01069	00936	01760	01855	02120	00214	00010	01321	14931	00663
00441	01285	03782	04940	00676	03049	04364	00914	01049	02268	04914	02858	00306	00014	01881	21392	00900
00168	00468	08188	04315	01244	06449	01499	00443	02219	00540	01087	01672	00174	00008	00401	12048	00512
00308	00901	03526	03853	00260	02271	04794	00757	00997	01770	02694	02517	00291	00014	01141	20328	00854
00265	01619	02182	03491	00245	02643	04825	00718	01041	02393	03195	02401	00261	00012	00638	18233	00767
00262	00886	06820	04998	00465	03053	02823	00538	01731	01101	01069	02706	00242	00011	00965	16861	00710
00190	01124	05421	06846	00688	03254	04326	00499	01345	01070	01006	01413	00118	00005	08756	08179	00347
00203	01413	04463	04092	01731	01537	05807	00424	01047	01257	00660	01426	00103	00005	13027	07117	00301
02512	01216	02927	03836	00284	02250	04883	00715	01176	01170	02094	02515	00291	00014	02892	20330	00854
00391	00858	03059	04498	00282	01969	04741	00661	01432	01226	01336	01927	00195	00009	03166	13595	00572
00380	01379	03356	04456	00317	02459	04572	00665	01132	01225	01522	02672	00319	00015	03105	22331	00938
00349	00979	02928	04224	00227	02190	04182	00629	01137	01015	01422	02292	00269	00013	02589	18767	00789
00415	00942	02441	02833	00167	01804	03344	00626	01009	01035	01500	02293	00282	00013	01812	19697	00827
00726	01520	02616	03504	00233	02113	04320	00675	01046	01146	01687	02520	00303	00014	02368	21220	00891
00400	02625	02599	03035	00226	01582	03589	00622	01320	00851	01115	01398	00153	00007	02049	10633	00447
00618	03502	02182	03252	00182	02498	04933	00905	01453	01628	02734	00331	00015	01302	23115	00971
00540	02281	02873	03537	00360	02271	04366	00712	01196	01295	01808	02671	00323	00015	02666	22585	00949
01035	01126	02950	05018	00252	02388	03182	00621	00983	01068	01844	01810	00205	00010	02099	14313	00602
00952	00930	02523	03203	00196	01920	04097	00843	01270	01263	01194	02049	00241	00011	01699	16841	00707
09550	02324	02094	02742	00296	01884	04253	00914	00926	01493	03779	02222	00262	00012	01335	18298	00769
00993	104664	02271	03091	00445	02443	03670	00741	01106	01740	02581	03390	00425	00020	01277	29727	01248
10091	00273	117000	02728	00106	01304	01127	00362	01007	00842	00462	00989	00095	00004	00233	06584	00277
00046	00178	05983	104895	00078	02559	00840	00308	00590	00516	00457	00512	00034	00002	00321	02334	00101
00208	00727	01167	01222	110601	02870	01501	00351	07171	00857	00727	01874	00206	00009	00373	13680	00576
00121	00291	02201	01312	00088	103299	05117	00684	04065	02204	00882	03528	00358	00002	00630	03647	00274
00161	00599	02603	01073	00053	01506	101670	01378	03226	05367	04653	04660	00128	00006	01274	08683	00366
00091	00312	00871	00608	00028	00475	00819	102454	00369	01943	03040	01134	00066	00003	00492	04622	00195
00130	00402	01264	00671	00033	00583	01140	01046	117105	02266	01678	01950	00256	00003	01168	07506	00318
00054	00165	12813	02159	00057	01016	03049	00377	02591	101095	00464	00683	00058	00003	00264	03809	00161
00759	03962	01857	02973	00121	02455	05021	09436	01297	02660	103006	04083	00307	00014	01332	21429	00916
00685	01848	04163	01742	00089	01280	04326	01283	01553	05660	01778	105771	00204	00010	00568	14223	00597
01593	00768	02477	01368	00072	02313	03427	00741	01271	03768	00802	01905	100789	00068	00307	10132	01567
00221	02803	03903	01210	00056	01047	01627	01008	01639	07616	04387	02518	00202	113350	00828	14076	00591
00970	09317	02767	04326	00695	02606	09032	00707	01150	01679	01770	04287	00194	00009	102611	13499	00577
01407	03685	02935	06181	00280	06503	06905	01108	01237	02090	03331	11680	01601	00075	01776	112354	04711
00149	00620	03710	03758	00235	02345	10405	00515	01664	05487	01784	03591	00136	00006	00416	09378	100398

r of Final Demand (Washington, December 1951).

TABLE II.

From	To	Pottery, glass, etc.		Diamond working, etc.		Printing, photography		Construction, etc.		Chemicals		Wood, cork and straw		Clothing and cleaning		Industrial arts		Leather, oil-cloth, rubber		Mining[2], peat digging		Metals, ships, aircraft, automobiles		Paper	
		R	V	R	V	R	V	R	V	R	V	R	V	R	V	R	V	R	V	R	V	R	V	R	V
Pottery, glass, etc.		12	-	-	-	-	-	175	-	8	-	-	-	-	-	-	-	-	-	-	-	4	-	-	-
Diamond working, etc.		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3	-	-	-
Printing, photography		1	-	-	-	7	1	-	3	-	3	-	2	-	3	-	-	-	1	-	5	-	19	5	-
Construction, etc.		-	4	-	-	-	1	-	-	-	4	-	3	-	4	-	-	-	3	-	3	-	17	-	-
Chemicals		4	-	-	-	8	-	54	1	93	-	8	1	13	-	-	-	21	-	10	-	51	1	7	-
Wood, cork and straw		1	-	-	-	-	-	73	-	7	-	69	-	5	-	-	-	2	-	2	-	14	3	2	-
Clothing and cleaning		-	-	-	-	-	-	-	-	-	-	-	-	29	-	-	-	-	-	-	-	-	-	-	-
Industrial arts		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Leather, oil-cloth, rubber		-	-	-	-	-	-	3	-	-	1	-	1	3	-	-	-	138	-	1	-	34	5	-	-
Mining[2], peat digging		18	-	-	-	-	-	9	-	94	-	-	-	3	-	-	-	1	-	6	-	17	-	6	-
Metals, ships, aircraft and automobiles		1	11	-	-	2	2	196	12	5	8	2	4	-	8	-	-	9	3	6	4	669	72	1	-
Paper		3	-	-	-	92	2	13	1	10	1	2	1	2	-	-	-	19	1	-	-	3	3	107	-
Textiles		-	-	-	-	-	-	1	-	5	-	10	1	23	-	-	-	29	-	2	-	3	-	3	-
Gas, electricity and water		6	-	-	-	3	-	1	-	13	-	2	-	4	-	-	-	2	-	1	-	34	-	2	-
Food and drink		-	-	-	-	-	-	-	1	80	-	1	1	-	-	1	1	16	-	2	-	-	-	-	-
Subtotal		46	15	-	-	110	6	525	18	315	17	94	14	289	15	1	2	237	8	30	12	832	120	135	-
Agriculture		-	-	-	-	-	-	-	-	1	-	17	-	3	-	-	-	-	-	2	-	-	-	11	-
Fishing and hunting		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Commerce: margins		8	-	-	-	12	-	111	-	9	-	38	-	13	1	-	-	29	-	5	-	117	-	27	-
imported end-products		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
publishers		1	-	-	-	-	-	-	1	-	3	-	-	-	7	1	-	-	-	3	-	-	4	-	-
Transport		-	7	-	-	-	3	-	5	-	12	-	5	-	7	-	-	-	3	-	11	-	56	-	-
Hotels, restaurants, cafés		-	-	-	-	-	-	-	-	-	8	-	-	-	2	-	-	-	-	8	-	-	2	-	-
Credit and banking		1	-	-	-	-	-	-	1	-	-	-	1	-	-	1	-	-	-	-	8	-	-	8	-	-
Insurance		-	2	-	-	-	1	-	1	-	3	-	1	-	2	-	-	-	2	-	5	-	20	-	-
Other activities, professions		1	1	-	-	-	2	-	2	-	2	-	6	-	5	-	-	-	3	-	7	-	21	-	-
Religion		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Domestic services		-	1	-	-	-	3	-	11	-	-	-	3	-	5	-	-	-	4	-	-	-	36	-	-
Subtotal		57	26	-	-	122	15	636	39	325	42	152	30	305	37	2	3	266	20	48	43	949	267	171	-
Government																									
Subsidies on imported goods		-2	-	-	-	-	-	-	-	-1	-	-	-	-1	-	-	-	-1	-	-	-	-4	-	-1	-
Taxes		-	12	-	-	-	13	-	63	-	84	-	21	-	34	-	-	-	33	-	17	-	126	-	-
Goods and services		1	-	-	2	-	-	-	-	-	-	-	1	-	-	-	-	-	7	2	-	4	-	-	-
Interest and profits		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Consumers																									
Social charges		-	8	-	1	-	7	-	41	-	8	-	11	-	17	-	-	-	8	-	14	-	58	-	-
Wages and salaries		-	84	-	4	-	81	-	315	-	84	-	112	-	182	-	3	-	89	-	157	-	716	-	-
Profits, entrepreneurs' income		-	17	-	7	-	36	-	198	-	101	-	68	-	167	-	2	-	110	-	17	-	410	-	-
Pensions, leave pay, benefits		-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Imputed interest		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Foreign countries																									
Goods and services		33	1	30	-	31	-	229	2	259	-	152	-	62	1	-	-	104	2	18	-	902	7	99	-
Benefits		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Profits and interest		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Imputed interest		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Balance-sheet changes																									
Amortisation		-	23	-	-	-	20	-	35	-	46	-	10	-	27	-	-	-	9	-	40	-	130	-	-
Diminution of stocks		-	-	-	-	-5	-	-	-	6	-39	-	-2	-	-	-	-	1	-	-	-	-112	-	-21	-
Savings		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Insurance funds																									
Premiums		-	3	-	-	-	3	-	18	-	4	-	5	-	6	-	-	-	3	-	22	-	37	-	-
Imputed premiums		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Subsidies		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Interest		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total		89	75	30	14	148	175	865	811	589	449	265	258	364	471	2	8	370	274	73	312	1 732	1755	248	-
		264		44		323		1 676		1 038		523		835		10		644		385		3 490		42	

R = raw materials V = value added

[1] Netherlands 111 ; foreign countries 12.

[2] Netherlands 457 ; foreign countries 10.

[3] Excl. nitrogen plants of State mines.

TABLE III. INPUT-OUTPUT, NETHERLANDS, 1948

(in millions of guilders)

Mining[a], peat digging		Metals, ships, aircraft, automobiles		Paper		Textiles		Gas, electricity and water		Food and drink		Subtotal		Agriculture		Fishing and hunting		Commerce			Transport	Hotels, restaurants, cafés	Credit and banking	Insurance	Other activities, professions
																		Operating costs	Imported end-products	Publishers					
V	R	V	R	V	R	V	R	V	R	V	R	V	R	V	R	V									
-	4	-	-	-	-	-	-	-	8	-	207	-	3	-	-	-	-	-	-	-	-	-	-	-	1
-	3	-	-	-	-	-	-	-	-	-	3	-	-	-	-	-	-	-	-	-	-	-	-	-	-
5	-	19	5	1	-	3	-	2	-	9	13	52	-	2	-	-	-	41	-	125	15	8	1	5	11
3	-	17	-	4	-	6	-	3	-	15	-	67	-	30	-	3	-	10	-	-	20	16	-	-	2
-	51	1	7	-	24	2	9	-	14	-	316	5	123	6	-	-	-	24	-	-	38	1	-	1	11
-	14	3	2	-	2	2	-	-	16	-	193	5	27	-	-	-	-	8	-	-	4	-	-	-	2
-	-	-	-	-	-	-	-	-	-	-	29	-	-	-	-	-	-	-	-	-	-	5	-	-	5
-	34	5	-	1	-	1	-	-	1	-	180	10	-	1	1	-	-	-	-	-	1	1	-	-	5
-	17	-	6	-	7	-	56	-	27	-	244	-	1	-	-	-	-	5	-	-	16	3	2	-	5
4	669	72	1	4	-	10	1	17	27	24	917	179	-	50	-	4	-	35	-	-	133	-	-	-	8
-	3	3	107	1	5	1	-	1	27	-	283	12	5	-	-	-	-	43	-	-	4	5	-	-	1
-	3	-	3	-	257	-	-	-	10	-	550	1	13	7	3	-	-	-	-	-	8	3	-	-	3
-	34	-	2	-	8	-	30	-	15	-	121	-	2	-	-	-	-	3	-	-	12	18	-	-	3
-	-	-	-	-	-	-	-	-	619	2	719	5	163	-	2	-	-	-	-	-	4	148	-	-	13
12	832	120	133	11	303	25	96	23	764	50	3 775	336	337	96	6	7	169	-	125	255	208	3	6	70
-	-	-	11	-	16	-	-	-	1 028	-	1 078	-	327	-	-	-	6	-	-	8	8	-	-	4
-	-	-	-	-	-	-	-	-	92	-	92	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	117	-	27	-	27	3	6	-	99	-	501	4	59	15	-	-	21	-	-	26	49	2	-	21	2
-	-	4	-	-	1	3	-	1	2	3	11	12	-	1	-	-	1	-	1	4	-	1	3	2	2
11	-	56	-	7	-	19	-	3	1	76	1	214	-	10	-	1	467	-	3	66	4	8	-	2	2
-	-	2	-	-	-	3	-	1	-	7	8	23	-	-	-	3	10	-	-	12	-	1	9	4	4
8	-	8	-	-	-	3	-	1	-	7	1	30	-	2	-	-	-	-	-	5	-	-	5	-	-
5	-	20	-	1	-	8	-	2	-	5	-	53	-	3	-	2	14	-	-	14	1	-	10	-	-
7	-	21	-	3	-	15	-	3	-	7	1	77	-	8	-	4	40	-	15	13	14	8	-	2	2
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	36	-	2	-	1	-	-	-	10	-	76	-	218	-	-	14	-	-	19	25	-	2	7	-
43	949	267	171	24	347	80	102	34	1 986	165	5 468	825	723	353	6	17	830	-	144	422	14	23	35	112	-
-	-4	-	-1	-	-2	-	-36	-	-215	-	-263	-	-78	-	-	-	-4	-	-	-4	325	-	-	-	-
17	-	126	-	13	-	43	-	15	-	437	-	911	-	37	-	4	645	-	8	101	-	8	7	53	-
2	-	4	-	1	1	-	-	4	1	6	10	20	-	3	4	1	-	-	-	10	23	-	-	5	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
14	-	58	-	5	-	19	-	8	-	29	-	234	-	38	-	2	37	-	4	27	7	9	8	15	-
157	-	716	-	54	-	207	-	86	-	316	-	2 590	-	417	-	35	451	-	43	593	165	118	105	271	-
17	-	410	-	61	-	230	-	47	-	435	-	1 986	-	1 007	-	20	1 070	-	10	360	77	136	21	432	-
-	-	-	-	-	-	1	-	-	-	-	-	2	-	-	-	-	-	-	-	2	-	-	-	1	-
-	902	7	99	3	400	7	85	-	898	2	3 302	25	334	2	7	-	111	1 210	4	627	-	-	-	14	-
40	-	130	-	16	-	58	-	88	-	90	-	592	-	71	-	10	105	-	-	300	36	9	68	14	-
-	-112	-	-21	-	25	-	-2	-	113	-	-56	-	-	-	-	-	-	9	-	-	-	-	-	-	-
22	-	37	-	4	-	14	-	6	-	9	-	134	-	12	-	1	22	-	1	41	2	4	2	7	-
312	1 735	1755	248	181	771	659	149	288	2 783	1489	8 481	7 319	979	1 940	17	90	3 267	1 219	214	2479	631	307	246	924	-
85	3 490		429		1 430		437		4 272		15 800		2 919		107										

[a] State mines.

Source: CENTRAAL BUREAU VOOR DE STAT
First Quarter 1951 (W. de Haan, Utrecht, 1951)

Hotels, restaurants, cafés	Credit and banking	Insurance	Other activities, professions	Religion	Domestic services	Operation of real estate	Redistribution of profits	Subtotal	Government: Subsidies to schools	Government: Goods and services	Government: Other subsidies	Consumers	Foreign countries	Balance-sheet changes: Investment goods	Balance-sheet changes: Producers' stocks	Balance-sheet changes: Work in progress	Balance-sheet changes: Stocks with traders	Insurance funds	Total	
-	-	-	1	-	-	-	-	211	-	10	-	32	13	4	-6	-	-	-	264	
-	-	-	-	-	-	-	-	3	-	-	-	1	40	-	-	-	-	-	44	
8	1	5	11	-	-	-	-	273	-	18	-	30	2	-	-	-	-	-	323	
16	-	2	2	-	-	54	-	202	4	414	-	40	10	853	-	155	-	-	1 676	
1	-	1	11	-	-	-	-	525	-	13	-	189	302	-	9	-	-	-	1 038	
-	-	-	2	-	-	-	-	239	-	7	-	222	19	36	-	-	-	-	523	
5	-	-	5	-	-	-	-	39	-	2	-	743	24	-	2	-	25	-	835	
-	-	-	-	-	-	-	-	-	-	-	-	8	2	-	-	-	-	-	10	
1	-	-	5	-	-	-	-	199	-	2	-	558	44	15	6	-	20	-	644	
3	2	-	5	-	-	-	-	276	6	7	13	66	14	2	1	-	-	-	385	
-	-	-	8	-	-	44	-	1 370	7	52	-	464	602	826	37	132	-	-	3 490	
5	-	-	1	-	-	-	-	353	2	5	-	15	52	-	2	-	-	-	429	
3	-	-	3	-	-	-	-	588	-	1	-	441	346	7	12	10	25	-	1 430	
18	-	-	3	-	-	-	-	159	3	12	-	256	-	7	-	-	-	-	437	
148	-	-	13	-	-	-	-	1 054	-	3	-35	2 454	667	-	127	-	2	-	4 272	
208	3	6	70	-	-	98	-	5 491	22	546	-22	5 319	2 137	1 750	190	295	72	-	15 800	
8	-	-	4	-	-	-	-	1 431	-	15	277	692	342	148	14	-	-	-	2 919	
-	-	-	-	-	-	-	-	92	-	-	-	12	3	-	-	-	-	-	107	
49	2	-	21	-	-	-	-	698	5	30	-	1 902	516	116	-	-	-	-	3 267	
-	-	-	-	-	-	-	-	-	-	25	-	411	9	721	-	-	53	-	1 219	
-	1	3	2	-	-	-	-	36	3	10	-	144	21	-	-	-	-	-	214	
4	8	-	2	-	-	-	-	776	1	118	-	446	1 117	21	-	-	-	-	2 479	
-	1	9	4	-	-	-	-	70	-	10	-	505	46	-	-	-	-	-	631	
-	-	5	-	-	-	-	60	103	-	161	-	25	18	-	-	-	-	-	307	
1	-	10	-	-	-	17	-	114	-	5	-	2	2	-	-	-	-	123	246	
14	8	-	2	-	-	-	-	182	-	87	-	495	160	-	-	-	-	-	924	
-	-	-	-	-	-	-	-	-	-	4	-	36	-	-	-	-	-	-	40	
25	-	-	-	-	-	-	-	39	1	-	-	180	-	-	-	-	-	-	220	
14	-	2	7	-	-	-	-	424	2	13	-	630	-	-	-	-	-	-	1 069	
323	23	35	112	-	-	115	60	9 456	34	1 024	255	10 799	4 371	2 756	204	295	125	123	29 442	
-	-	-	-	-	-	-	-	-349	-	-	349	-	-	-	-	-	-	-	-	
23	8	7	53	-	-	152	-	1 949	-	-	-	2 666	-	-	-	-	-	-	4 615	4 989
-	-	-	5	-	-	-	-	53	-	-	-	55	90	-	-	-	-	-	198	
-	-	-	-	-	-	-	164	164	-	-	-	-	12	-	-	-	-	-	176	
7	9	8	15	-	-	-	-	381	-	-	-	-	-	-	-	-	-	-	381	
163	118	105	271	40	220	-	-	5 046	274	1 004	-	-	1	-	-	-	-	-	6 325	
77	136	21	432	-	-	542	-366	5 295	-	292	-	-	259	-	-	-	-	-	5 846	13 785
-	-	-	1	-	-	-		5	-	431	-	-	162	-	-	-	-	435	1 033	
-	-	-	-	-	-	-		-	-	-	-	-	-	-	-	-	-	200	200	
-	-	-	14	-	-	-	-	5 636	1	125	-	149	37	-	-	-	-	-	5 948	
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	10	10	6 124
-	-	-	-	-	-	-	98	98	-	63	-	-	-	-	-	-	-	-	161	
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	5	5	
36	9	68	14	-	-	260	-	1 465	-	-	-	-	-	-	-	-	-	-	1 465	
-	-	-	-	-	-	-	-	-27	-	-	-	-	-	-	27	-	-	-	-	3 407
-	-	-	-	-	-	-	-	-	-	788	-	-457	1 144	-	-	-	-	467	1 942	
2	4	2	7	-	-	-	-	226	11	55	-	372	12	-	-	-	-	-	676	
-	-	-	-	-	-	-	-	-	-	-	-	200	5	-	-	-	-	-	205	1 240
-	-	-	-	-	-	-	-	-	-	139	-	-	15	-	-	-	-	-	154	
-	-	-	-	-	-	-	44	44	-	144	-	1	16	-	-	-	-	-	205	
531	307	246	924	40	220	1 069	-	29 442	320	4 065	604	13 785	6 124	2 756	731	295	125	1 240		
									4 989					3 407						

VOOR DE STATISTIEK: *Statistische en Econometrische Onderzoekingen*, New Series, Sixth Year, No. 1, , Utrecht, 1951).

from which it follows that C = 100 and A = 150. It is now easy to find the production of chemicals for agriculture (100 — 70 = 30) and of agriculture for chemicals (150 — 100 = 50), and the table may be made up as follows:

From \ To	C	A	Final demand		Total
			Households	Exports	
C	—	30	50	20	100
A	50	—	100	—	150
Households	50	120	—	—	170
Total gross outlay	100	150	150	20	420

Thus, as a result of the increase in exports of chemicals by 20 millions, the output of chemicals increased by 22.222 millions (100.000—77.778) and the output of agriculture increased by 11.111 millions (150.000—138.889) [1].

The solution of these equations is the same as that which could be found by the more laborious process of examining each separate expenditure, as was illustrated above in the example where expenditures to particular industries were traced from an initial level expenditure to the "agriculture and fisheries" industry. In the simpler illustration used here the rounds of spending to chemicals and agriculture may be shown graphically as follows:

Chemicals		*Agriculture*	
(1) Initial sales of chemicals for export	= 20.0	(2) Spending of chemicals to agriculture for raw materials to produce goods for export .5 × 20	= 10.0
(3) Spending of agriculture to chemicals to produce (2) in agriculture .2 × 10	= 2.0	(4) Spending of chemicals to agriculture to produce (3) in chemicals .5 × 2.0	= 1.0
(5) Spending of agriculture to chemicals to produce (4) in agriculture .2 × 1	= .2	(6) Spending of chemicals to agriculture to produce (5) in chemicals .5 × .2	= .1
(7) Spending of agriculture to chemicals to produce (6) in agriculture .2 × .1	= .02	(8) Spending of chemicals to agriculture to produce (7) of agriculture .5 × .02	= .01

[1] It should be noted that of the 22.222 millions increase in the output of chemicals 2.222 is sold to agriculture; and all the 11.111 millions increase in outlay of agriculture is sold to chemicals. If this double-counting is eliminated, the net increase in production (33.333 — 11.111 — 2.222) is 20 millions—equal to the increase in final demand.

The sums of these expenditures are then 22.22 (20.00+2.00+.20+.02) in the case of chemicals, and 11.11 (10.00+1.00+.10+.01) in the case of agriculture. These figures are very close to 22.222 and 11.111, the results obtained by solving the above equations. If this process of tracing the movement of commodities were continued into the fifth and higher numbers of rounds of spending, the results of this method and the results of the method of simultaneous equations would become identical.[1]

A modern industrial economy includes scores of important industries—not merely agriculture and chemicals—but the principles illustrated in the above set of equations and in the miniature input-output table remain the same when applied to much more complicated input-output tables, such as those reproduced as tables I, III and IV. In larger input-output tables there are more rows and columns representing more industries, and in the solution of problems arising within these tables there are more equations to correspond to the larger number of sectors of the economy. Under certain conditions these larger tables may be used to solve problems which involve tracing the direct and indirect effects on output of economic policies. The mathematical procedures used for this purpose are more complicated than those illustrated above, but they nevertheless depend on solving sets of simultaneous equations. In all cases a table of technical coefficients is first worked out. Then, with the aid of these coefficients, equations are set up and solved to determine the impact of any change in final output in any particular industry on output in every other industry. This computation is the same in principle as the solution of the above illustrative problem of two equations and two unknowns, where it was found that, for every dollar increase in final output of chemicals, the total output of chemicals would increase by $1.22 and the output of agri-

[1] While the formal mathematics of the solution of these equations is similar to the development of the famous Kahn-Keynes multiplier process, it must be emphasised that the economic meanings of the two results are entirely different. In the case of the Kahn-Keynes multiplier, new income and employment are created by the successive spending from household to household of an initial money expenditure. In the case cited here, however, there is only one round of spending between households, so that income is not " multiplied ". In the example used in this paper, it is the volume of transactions rather than income which is multiplied because there is circular interdependence between industries.

TABLE IV. INPUT-OUTPUT, DENMARK, 1946

TABLE IV. INPUT-OUTPUT, DENMARK, 1946

(in millions of kroner)

From \ To	Agriculture	Forestry	Gardening	Bee-keeping, etc.	Fisheries	Peat and lignite	Industry	Handicrafts	Building and construct.	Public utilities	Commerce, finance and insurance	Transportation	Utilisation of dwellings	Professional services	Domestic servants, cleaning	Government	Households	Investment	Foreign countries
Agriculture	9	—	—	—	—	—	638	39	—	—	—	17	—	—	—	75	1,436	28	947
Forestry	4	—	—	—	—	—	29	14	5	—	2	7	—	—	—	—	12	—	1
Gardening	—	—	27	—	—	—	21	8	—	—	—	6	—	—	—	28	528	—	17
Bee-keeping, etc.	—	—	—	—	—	—	4	8	—	—	—	—	—	—	—	—	33	—	2
Fisheries	—	—	—	—	1	—	19	—	—	—	—	—	—	—	—	2	19	—	146
Peat and lignite	11	—	13	—	—	—	38	5	—	10	4	—	—	—	—	5	76	—	—
Industry	293	—	70	8	27	—	1,446	490	540	143	202	148	—	10	—	278	3,051	1,370	387
Handicrafts	54	—	—	—	12	—	297	125	85	5	34	6	—	—	—	38	1,437	214	—
Building and construction	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1,519	—
Public utilities	38	—	2	—	—	—	70	12	—	—	20	18	—	—	—	26	298	—	—
Commerce, finance and insurance	67	—	4	—	1	1	127	119	64	2	84	60	—	2	—	72	3,103	129	74
Transportation	44	1	8	—	3	2	71	27	21	5	101	74	—	5	—	32	515	96	73
Utilisation of dwellings	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	793	—	—
Professional services	16	—	2	—	1	—	14	7	3	1	11	7	—	1	—	5	284	—	—
Domestic servants, cleaning	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	399	—	—

Source: Statistical Department of Denmark, as quoted in *National Account Studies, Denmark* (Paris, O.E.E.C., 1951), pp. 66-67.
(The table will be included in a volume entitled *Nationalproduktet* to be published in the near future by the Danish Statistical Department.)

culture would increase by $0.56.[1] In table II are shown the same kind of results on a larger scale. Each row gives all the direct and indirect requirements, as determined by the solution of equations, which would result in all other industries from each additional expenditure of one dollar for final demand to any particular industry.[2] For example, each dollar of expenditure to the agricultural and fishing industry would directly and indirectly produce an increase in output of $1.414 [3] in " agriculture and fisheries ", $0.097 in " food and kindred products ", $0.006 in " textile mill products ", $0.003 in " apparel ", $0.009 in " lumber and wood products ", and so on.

Production and Employment

The discussion has thus far been concerned with the impact of a change in final demand on the output of the various industries that make up the economy. The administrators of manpower policy are, however, concerned with anticipating changes in employment rather than merely changes in output. If the results of input-output analysis are applied to manpower policy, it is therefore necessary to consider also the impact of changes in output on employment. The effects of increased output on employment differ widely between industries, because some industries, of which power and petroleum refining are an example, can expand output substantially without requiring much increase in employment, while other industries, such as textiles and shipbuilding, require substantial increases in employment if output increases. Estimates have been made of the extent to which employment will change in a particular industry as a result of an increase in output. These are known as " labour input coefficients ", and examples of them are given in the first column of the

[1] The actual solution of problems involving a large number of equations requires special computing equipment.

[2] For technical reasons the construction and maintenance industry shown in table I is excluded from table II.

[3] This figure may be greater than unity for two reasons. Firstly, some establishments in the agriculture and fisheries industry sell to other establishments in the same industry rather than for final demand. Secondly, some industries from which the agriculture and fisheries industry makes purchases buy in turn from the agriculture and fisheries industry and, as was indicated in the footnote on p. 611, these transactions are counted twice or more in gross output.

following table, which indicates the number of thousands of man-years by which employment would have to increase in a particular industry in order to give an increase of one million dollars in the total output of that industry.

TABLE V. LABOUR INPUT COEFFICIENTS OF CERTAIN INDUSTRIES

(thousand man-years per million dollars of total output)

Industry	Labour input coefficient	Total employment coefficient
Agriculture and food	.7011	1.1393
Minerals	.1531	.5659
Metal fabricating	.2296	.5057
Fuel and power	.1682	.5176
Textiles and leather	.3499	.7701
Transportation (railroad)	.2368	.4886

Note. The table is based on W. W. LEONTIEF: *The Structure of the American Economy, 1919-1939*, *op. cit.*, pp. 149 and 161. The data relate to the year 1939 and are derived from an amalgamation of industries into a smaller number of groups than are shown in tables I and II; they are therefore cited only as examples of labour input coefficients and should be applied cautiously to results obtained from tables I and II. These coefficients were worked out on the assumption that hours of work and productivity were unchanged.

The labour input coefficients should not be confused with "direct employment coefficients", examples of which are shown on page 161 of Leontief's book. The latter show the relationship between employment and the output of an industry for final demand rather than the relationship between employment in a particular industry and total output in the same industry.

Thus, for example, if the total output of "agriculture and foods" increased by five million dollars, it would be estimated that employment in "agriculture and foods" would increase by about 3,500 workers ($5 \times .7011 \times 1{,}000$).

At this point it may be helpful to give an example of how input-output analysis may be used to trace the effect of a change in final output in one industry on employment in another industry. Suppose that a ten-million-dollar increase in investment, taking the form of additional purchases of metal-working machinery, was authorised in the metal-working industry and it was desired to know what would be the total impact of this investment on employment in the iron and steel industry. In table II in the row opposite "metal-working machinery" below the heading "iron and steel" will be found the figure .17067, which represents the total dollar expenditure to the iron and steel industry estimated to result from all the direct and indirect effects of an increase of one dollar in the final demand for metal-working machinery. Total expenditure to the iron and steel industry will therefore increase

by about $1.71 million if expenditure to the metal-working machinery industry increases by about ten million dollars. To find the increase in employment in iron and steel, it is then necessary to multiply the increased output of the iron and steel industry by an appropriate labour input coefficient. Suppose, as an illustration, that the labour input coefficient in iron and steel was .18, then the increase in employment in iron and steel would be about $1.71 \times .18 \times 1{,}000$, or approximately 300 workers. The impact of increased final demand on employment in iron and steel is calculated by multiplying the amount of increased final demand by the appropriate coefficient from table II and then by the labour input coefficient for the industry concerned.[1]

The same process can be applied to estimate the effect of a change in final demand for the output of any industry on the output of any other industry shown in table II. To estimate the effect of an increase in final demand on total employment in the whole economy, it is only necessary to add together all the separate estimates of how much employment would increase in each industry. The resulting figure for total employment (in thousands of man-years) may then be divided by the amount by which final demand increased (in millions of dollars) to yield the " total employment coefficients " as given in the second column of table V. The direct and indirect effects on employment of an increase in final demand (assuming that in all industries employment is proportional to output) may be found by multiplying the increased final demand by the total employment coefficient. For example, if final demand in metal fabricating increased by ten million dollars, employment throughout the economy would increase by 5,057 man-years. The differences in the impacts on total employment of various types of final demand are particularly striking.

Unemployment and Inflation

In the above discussion of the results of an increase in final demand on employment, it was implicitly assumed that

[1] Employment may often be connected to output by a more complicated relationship than proportionality. Under these conditions the increase in employment that will result from an increase in output can, nevertheless, be estimated relatively easily by applying the estimated increase in total output to whatever formula seems most adequately to express employment as a function of output.

there were unused manpower, raw materials and machinery in all sectors of the economy, so that if producers received demands for increased output they would have no difficulty in producing more at existing price levels. This was the situation that to a large extent prevailed during the depression of the thirties. At that time no one complained of shortages of the means of production.

In other periods, however, particularly during wars or post-war reconstruction, there have been shortages of the means of production needed to increase output, especially of essential raw materials. In such conditions the results of expenditures by governments, households, investors, or for exports—as traced through input-output tables—would cause significant increases not in the quantity of goods produced but in the prices of these goods. These are the conditions of actual or at least potential inflation.

But in the real world a mixture of unemployment and inflationary pressures often prevails. In some sectors of the economy there may be unemployed workers, unused machinery and plenty of available raw materials, but other sectors of the economy may face manpower shortages, pressures on the capacity of machinery and bottlenecks in essential raw materials. Under these conditions, policies of increased spending to remedy unemployment or of decreased spending to remedy inflation may do more harm than good unless a careful appraisal is made with the aid of input-output tables, not only of the primary effects of a policy to increase or decrease spending, but also of the other effects of the initial increase or reduction of expenditure in other sectors of the economy (which may face problems quite different from those which the original expenditure policies were intended to overcome). Thus, if the demand for steel is greater than the supply, the steel industry may face inflation, but at the same time the demand for construction may be less than sufficient to employ all the available workers in that industry. A programme to overcome unemployment by a government-sponsored construction programme will in such conditions intensify inflation in the steel industry (and probably in industries which are important users of steel) because expenditures to provide employment in construction will in part be reflected later in increased expenditure on the products of the steel industry, since steel is used in construction. It

would therefore be desirable, if unemployment were to be relieved without inflation, that a programme to encourage construction should be accompanied by measures to increase the output of steel.

Such mixed situations of some unemployment and some inflationary pressure are now of particular interest because certain economies are changing the composition of their output so as to devote proportionately less to consumption and proportionately more to investment programmes and defence. In such circumstances some unemployment may prevail in consumer goods industries, while labour shortages may become more important in investment goods and defence industries. (Similar problems will, of course, arise with regard to plant capacity and raw materials.)

This kind of unemployment may be called frictional unemployment. It occurs when the number of jobs available is at least equal to the number of workers in the labour force, but some workers are unemployed because they do not possess the skills required for the unfilled jobs or do not live in the places where jobs are available. Under these conditions the areas and industries where workers are in over-supply will have unemployment, while areas and industries which lack manpower will contribute to inflationary pressures because they will not have the labour force to produce enough goods to match demand. As was pointed out at the beginning of this article, the direct responsibility for dealing with this problem lies with the employment service. But in order to overcome these difficulties effectively the employment service will need to have information enabling it to anticipate changes in the employment market.

It is for this purpose that input-output tables may be useful. For example, input-output analysis may suggest that at a certain stage in a defence programme the output of steel will need to be increased and the output of cement and similar products will need to be decreased. Such a possibility might occur if a construction project required for a defence programme was nearing completion whereas the output of ordnance supplies was being expanded. In such circumstances total employment might decline slightly because the steel industry has a lower labour input coefficient and therefore tends to employ fewer workers per unit of output than the

cement industry. A more important problem, however, would be to match the new manpower requirements in steel to those which might be found among workers displaced from cement. In table VI is shown, purely to illustrate this problem, the percentage distribution of various skills which were employed in the steel industry and in the cement and related products industry in the United States during 1940. This table indi-

TABLE VI. PERCENTAGE DISTRIBUTION OF SELECTED SKILLS OF WORKERS IN THE STEEL INDUSTRY AND IN THE CEMENT AND RELATED INDUSTRIES, UNITED STATES, 1940.

Occupations	Iron and steel	Cement and related industries[1]
Chemists, assayers and metallurgists	0.76	0.84
Other professional and semi-professional workers	2.19	1.44
Proprietors, managers and officials (except farm)	1.53	6.14
Clerical, sales and kindred workers	10.32	9.13
Carpenters	0.55	0.50
Electricians	1.72	0.71
Foremen	3.59	3.45
Machinists, millwrights and toolmakers	5.82	1.67
Masons, tile setters and stonecutters	0.63	0.47
Mechanics and repairmen	1.47	1.70
Moulders, metal	0.74	0.01
Plumbers and gas and steam fitters	0.77	0.10
Rollers and roll hands, metal	3.95	—
Stationary engineers, cranemen and hoistmen	4.79	1.97
Other craftsmen, foremen and kindred workers	2.75	0.89
Truck drivers, delivery men and chauffeurs	0.76	3.73
Firemen (except locomotive and fire department)	0.55	3.04
Welders and flame-cutters	1.83	0.37
Other operatives and kindred workers	25.90	19.63
Protective service workers	0.93	1.11
Other service workers	0.52	0.34
Labourers	27.61	42.47
Occupation not reported	0.32	0.28

[1] Includes cement, concrete, gypsum, plaster products and structural clay.

Source: Based on a sample survey reported in the *United States Census of Population, 1940*, Vol. 3.

cates that, even if the steel industry needed to expand employment by the same number of workers as would be lost by the cement and related industries, there would be a shortage of machinists, millwrights and toolmakers, since this skill comprised 5.82 per cent. of employment in the steel industry and 1.67 per cent. of the cement and related industries. There might also be frictional unemployment because labourers, who comprised 42.47 per cent. of the employment in the

TABLE VII. PLANNED INPUT AND OUTPUT, ISRAEL, 1953

(in £I. million)

From \ To	Agriculture (including irrigation)	Manufacture (including generation of power)	Building and construction	Commerce	Transportation	Services	Government	Export	Fuel	National wealth	Consumption and payment of direct taxes	Total
Agriculture (including irrigation)	20.8	13.7	—	—	0.5	—	—	10.0	—	8.7	59.4	113.1
Manufacture (including generation of power)	7.0	61.0	31.7	4.5	6.1	2.0	4.8	22.2	—	35.8	118.7	293.8
Building and construction	—	—	—	—	—	—	—	—	—	136.3	—	136.3
Commerce	2.5	8.2	5.5	—	3.3	—	0.8	2.4	1.8	7.6	60.0	92.1
Transportation	1.3	3.9	11.7	1.6	0.8	1.1	4.0	18.0	0.5	1.6	18.4	62.9
Services	1.0	4.0	—	6.0	0.6	1.4	18.0	11.1	—	—	52.0	94.1
Government	—	15.2	—	4.6	6.7	1.0	—	—	2.6	1.7	76.2	108.0
Import	11.4	49.6	12.5	—	5.9	0.8	7.0	—	6.1	23.2	19.8	136.3
Fuel	1.1	6.0	—	—	2.0	—	—	—	—	—	1.9	11.0
National wealth	6.3	12.6	—	1.6	5.5	—	13.0	—	—	—	16.0	55.0
National income	61.7	119.6	74.9	73.8	31.5	87.8	40.3	—	—	—	—	489.6
Total	113.1	293.8	136.3	92.1	62.9	94.1	87.9	63.7	11.0	214.9	422.4	

Source: A. L. GRUENBAUM: *Four Year Development Plan of Israel, 1950-1953* (Jerusalem, Prime Minister's Office, 1951), p. 34.

cement and related industries, comprised 27.61 per cent. of employment in the steel industry.

It may likewise be necessary to encourage workers to move between regions. The distribution of the skills of workers is not the same in all areas, so that if labour shortages developed in one industry and unemployment appeared in another industry there would probably be labour shortages in some areas and unemployment in other areas. When the input-output analysis clearly suggests that changes will take place in the structure of the economy, the measures which should be undertaken by manpower authorities are two-sided in character, involving a careful balancing of skill requirements and locational requirements, always with a view to avoiding surpluses of manpower with respect to certain skills or regions and shortages of manpower with respect to other skills or regions. Table VI could in theory be expanded into a master table showing, for a particular period, the industrial distribution of each skill subdivided according to its regional distribution.

Another important use that may be made of input-output analysis is in connection with long-term production plans, for instance in connection with a programme for defence expenditure or for economic development. The essence of such planning is the establishment of certain target levels of output to be fulfilled at some time in the future. The problem is to ensure that such targets are consistent with each other—for instance, to ensure that the planned level of output of fuel is sufficient to meet the fuel requirements of manufacturing, transport and other sectors of the economy. If targets are not so consistent with each other, waste or shortages will result. The establishment of appropriate input-output tables permits a check on the consistency of targets. In table VII is shown an internally consistent input-output table for 1953 which has been prepared in connection with Israel's development planning.[1]

Limitations of Input-Output Analysis

The above discussion of possible applications of input-output analysis to problems of manpower policy should not

[1] A. L. Gruenbaum: *Four Year Development Plan of Israel, 1950-1953* (Jerusalem, Prime Minister's Office, 1951).

be interpreted to mean that input-output tables are an " economic machine " that can be used indiscriminately to forecast changes in manpower requirements. Input-output analysis is still in its infancy and a great many theoretical and practical problems remain to be overcome before its usefulness can be convincingly demonstrated. It is therefore important to indicate the circumstances in which this method of analysis is unlikely to be useful, and also to indicate ways in which input-output tables may be improved to make them more reliable and to broaden their range of application.

The most controversial question regarding input-output tables centres around the stability of technical coefficients. It will be recalled from the earlier section on the method of simultaneous equations that technical coefficients are the proportions in terms of value in which raw materials or semi-finished products are used for the manufacture of products of a more finished character. For example, if the value of output of the clothing industry were $13 thousand million and if that industry used $4 thousand million worth of textile products the technical coefficient between clothing and textiles would be .308 (4÷13). In preceding sections of this article it was assumed that these coefficients remain the same during primary, secondary and successive rounds of spending and that they do not change although the volume of output may rise or fall. There are, however, at least four conditions under which it would be more reasonable to expect technical coefficients to change. In the first place there may be changes in the relative importance of the sub-classes of goods or services produced within the industries listed in the rows and columns of the table. This difficulty arises because it is not feasible to construct a table with thousands of rows and columns representing all the commodities produced in industrialised countries. It is therefore necessary to combine products which have similar characteristics into the same rows and columns. For example in the United States input-output table for 1947 the value of the output of rayon is added to the value of the output of other textiles to form the row and column " textile mill products ". Such a procedure cannot be expected to give satisfactory results if there is a substantial increase in the demand for rayon without a corresponding increase in the demand for other textiles. Under these conditions, because

rayon consumes proportionately more chemicals than other textiles, the secondary repercussions of increased demand for textiles on the chemical industry would be much greater than would be indicated by the technical coefficient for all textiles with respect to chemicals.

The remedy for this so-called "product-mix problem" may lie in a finer division of the input-output tables into more rows and columns, separating out products which use substantially different combinations of raw materials and semi-finished products. In the United States Government [1] and the Netherlands Central Bureau of Statistics extensive work is being done along these lines. In the United States Bureau of Labor Statistics substantial progress has been made in the construction of an input-output table with about 500 rows and columns.

Invention is a second reason why technical coefficients may change. The development of synthetic rubber, for example, has reduced the technical coefficient of the rubber industry for imports (in the form of natural rubber) and has increased its technical coefficient for products of the chemical industry. In the third place technical coefficients may change as a result of price changes. For example, if coke is expensive and scrap iron is cheap, the proportions of scrap iron used in the steel industry may be increased. Finally, technical coefficients may change as a result of what are known as changes in the scale of output. Thus, if the load of railroad traffic is doubled, the requirements for fuel may not need to be doubled because rolling stock could be more completely utilised at a higher level of output. Similarly, if attendance at theatres doubles, consumption of electricity by theatres would probably not be doubled because the electrical requirements for a theatre remain about the same whatever the size of the audience.

If these conditions which make technical coefficients unstable are widespread in an economy it becomes difficult to use input-output analysis. It seems doubtful, however, whether technical coefficients often change to any great extent within the relatively short periods of time with which manpower policy is concerned. In certain cases when changes

[1] Cf. Ezra GLASER: "Interindustry Economics Research" in *The American Statistician*, April-May 1951, pp. 9-11.

in technical coefficients can be expected, it may be possible to alter an input-output table to take these expected changes into account. In a United States Bureau of Labor Statistics study which analysed the probable manpower requirements in 1950 on the basis of a 1939 input-output table, adjustments were made for the following important changes in technical coefficients : (1) a 25 per cent. reduction in unit coal consumption by railroads ; (2) a 650 per cent. increase in unit diesel oil consumption by railroads ; (3) a 20 per cent. increase in the amount of textile fibre per motor-tire, with 60 per cent. of the fibre supplied by cotton and 40 per cent. by synthetics ; (4) a continuation of the pre-war trend towards the substitution of synthetic fibres for cotton in apparel.

Assumptions of this kind do not, however, deal with the more serious problem that initial outlays for consumption, capital goods, stocks, government expenditure and exports—listed under these headings in the upper right-hand corner of the table—may vary in magnitude and in the way in which they are divided among various industries. It is often difficult, moreover, to foresee these values accurately. In his earlier work Leontief attempted to deal with this problem, in so far as consumption is concerned, by assuming that households were simply another industry which receives payments for the services that it renders and which then expends its income to other industries in fixed proportions. Under these conditions households would behave in the same way as industries : they would receive income from other industries and in order to keep the household in operation they would make purchases from other industries. There would then be a set of technical coefficients to describe the requirements of households from other industries in the same way as there are technical coefficients to relate requirements of each industry to every other industry. But in the case of households technical coefficients do not appear to be unchanging at different levels of income. There is a substantial amount of evidence that as the income of consumers rises—all other conditions remaining the same—they spend a decreasing proportion of their income for food and an increasing proportion of their income for furniture, automobiles and other durable goods. There do not appear to be very many individual commodities for which demand is proportional to changes in incomes.

Investment in stocks or capital goods is also determined by much more complicated circumstances than the simple conditions of fixed technical coefficients between the level of output of each industry and the level of its purchases of stocks and capital goods.[1] Investment may also be influenced by profits, prices, replacement requirements, interest rates and a great many other factors.

These complexities in the determination of the level and allocation of expenditures in the " final demand " columns of the table make it necessary, when these magnitudes are expected to change by a large but unknown extent, to supplement input-output analysis by estimates of future consumption and investment. Estimates of this kind do not, however, show a high degree of accuracy and are not yet in an advanced stage of development.[2]

In spite of these difficulties in its application the method of input-output analysis may prove to be of great help to administrators of manpower policy. If, however, it is to be used with good results, due allowance must be made for its limitations and for all the unpredictable human factors in an employment situation. Subject to these conditions the method, although it may lack the accuracy required for successful work in engineering or the natural sciences, may nevertheless suggest policies which will be superior to those based upon information that is not organised to give an over-all view of an economy.

---

[1] Leontief in more recent writings has suggested that investment may be determined by relating it to changes in output, which in turn will change capacity requirements for capital goods and also requirements for stocks to keep on hand. Investment would then be related by a special type of technical coefficient not to output but to changes in output, and the equations which are illustrated above would include changes in output as well as absolute amounts of output. This suggested explanation for investment is, however, in a less developed stage than the work on input-output, which is concerned with types of inter-industrial relationships involving raw materials and semi-finished products only.

[2] A useful but somewhat technical discussion of methods for analysing the determination of consumption, investment and other large economic magnitudes will be found in Lawrence KLEIN : *Economic Fluctuations in the United States 1921-1941* (New York, John Wiley and Sons, 1950).

REPORTS AND ENQUIRIES

Social Policy in Non-Metropolitan Territories

At its 115th Session in June 1951 the Governing Body of the International Labour Office decided to convene the Committee of Experts on Social Policy in Non-Metropolitan Territories for a discussion on (1) penal sanctions for breaches of contract of employment by indigenous inhabitants; (2) migrant labour; (3) technical and vocational training and other allied problems within the competence of the I.L.O.; (4) the programme of work of the Office with respect to non-metropolitan territories.

The Committee met in Geneva from 26 November to 8 December 1951. Its opinions and suggestions were submitted to the Governing Body, which examined and approved them at its 118th Session (Geneva, 11-14 March 1952). The work of the Committee on the four points in its agenda is briefly summarised below.

Penal Sanctions for Breach of Contract

The Trusteeship Council of the United Nations adopted a resolution at its 6th Session (January-April 1950) which, among other things, asked for the advice of the International Labour Organisation to be obtained on the problems of migrant labour and penal sanctions for breach of contract of employment, to which an earlier session of the General Assembly of the United Nations had attached much importance.

When the request of the Trusteeship Council was received by the Governing Body of the International Labour Office, it was decided as a first step to approach the member States administering indigenous populations to which the Penal Sanctions (Indigenous Workers) Convention, 1939, would apply, asking for information on current law and practice and on the difficulties which prevented fuller ratification; and then to refer the question to the Committee of Experts on Social Policy in Non-Metropolitan Territories for its recommendations.

The operative provisions of the 1939 Convention are as follows :

Article 1

1. This Convention applies to all contracts by which a worker belonging to or assimilated to the indigenous population of a dependent territory of a Member of the Organisation, or belonging to or assimilated to the dependent indigenous population of the home territory of a Member of the Organisation, enters the service of any public authority, individual, company or association, whether non-indigenous or indigenous, for remuneration in cash or in any other form whatsoever.

2. For the purpose of this Convention " breach of contract " means—

(a) any refusal or failure of the worker to commence or perform the service stipulated in the contract ;

(b) any neglect of duty or lack of diligence on the part of the worker ;

(c) the absence of the worker without permission or valid reason ; and

(d) the desertion of the worker.

Article 2

1. All penal sanctions for any breach of contract to which this Convention applies shall be abolished progressively and as soon as possible.

2. All penal sanctions for any such breach by a non-adult person whose apparent age is less than a minimum age to be prescribed by law or regulations shall be abolished immediately.

It should be noted that the Convention does not cover every offence that may occur in the employer-employee relationship, but only breaches of the contract of employment in the strict sense, that is, breaches of the obligation to perform the service stipulated or implied in the contract. There are two other main groups of offences : (1) Offences against public order and labour discipline, and actions other than those covered by the Convention which involve material or other loss for the employer or damage to his property. This group would include drunkenness while at work ; violent language or insult ; threats, assault or disorderly conduct ; use of the employer's property without his permission ; acts of omission or commission involving material or other loss for the employer or damage to his property. (2) Violation of health and safety regulations.

The offences in group (1) are of a mixed character. They do not, according to modern legal principles, normally come under the penal law but are dealt with by means of civil sanctions or, in some instances, by disciplinary action. Nevertheless, in any offence in this group there may be an element which would render the offender liable to penal sanctions in any country. Offences under group (2) normally involve penal sanctions under modern legislation.

Breaches of the obligation to perform the service stipulated in the contract are not, according to the legal principles of the most advanced countries, punishable under penal law but only give

rise to civil penalties or, in the case of less serious offences, disciplinary action. It appeared to the International Labour Conference in 1939 that only with respect to offences in this group was there any substantial difference between the legislation of territories with indigenous labour and that of countries observing modern labour code procedures, and that the Convention should therefore deal only with them.

The Committee of Experts noted that the Conference in 1939 did not consider the immediate abolition of penal sanctions feasible, but required them to be " abolished progressively and as soon as possible ", except with regard to non-adult persons whose apparent age is less than a certain minimum, in which case penal sanctions were to be abolished immediately. The Committee therefore thought it desirable to review the progress made in recent years in the countries concerned.

It found that, while the Penal Sanctions (Indigenous Workers) Convention had been ratified only by the United Kingdom and New Zealand, the *de facto* situation was far more favourable than this fact would suggest. According to the information supplied, penal sanctions for breach of contract no longer existed in French, Italian, Netherlands, New Zealand and United States territories. The Government of the Netherlands had informed the Office that it had taken steps to ratify the Convention at an early date. The problem was now of importance only in certain areas of Central and East Africa and in the Union of South Africa, including the territory of South West Africa.

In Southern Rhodesia the law had not changed since the adoption of the Convention, and the Government's position was that the " immediate or even early abolition of criminal penalties in the circumstances obtaining in Southern Rhodesia would be likely not only to upset labour stability but to increase lawlessness ". The legislation on the subject had been strongly influenced by that of South Africa, where the Masters and Servants Acts of the different provinces of the Union and the Native Labour Regulations Act (No. 15 of 1911) all provided penalties for breaches of contract by manual and domestic workers such as those detailed in Article 1 of the Convention. The Union Government had stated that it did not contemplate ratification of the Convention. In the territory of South West Africa a similar system was in operation.

In the Belgian Congo, penal sanctions for breach of contract were prescribed in the event of refusal to carry out the contract and of grave or repeated offences against labour discipline or the rules of the establishment. There were 39,576 and 34,066 convictions for such offences in 1948 and 1949 respectively. A tripartite commission had, however, recently recommended that penal sanctions should not apply to women workers, to workers holding certificates of competency, to professional workers such as school teachers, and to other categories to be designated by the local administration. For all other workers, the commission recommended that penal

sanctions should be applicable only during the first three years of employment. If the worker committed no offence during that period he would be exempt from them in future. If he incurred any penal sanction during the initial period, the trial period would be extended to six years. No account would be taken of any offences committed during the first three months of employment. Workers were not, in any case, subject to penal sanctions if they were under the actual or apparent age of 18 years. The proposals of the tripartite commission had been submitted to the Council of Government, and further action might be expected both in respect of the Belgian Congo and the trust territory of Ruanda-Urundi (to which Belgian Congo legislation applies).

In the Portuguese territories, according to information supplied to the Committee, only those indigenous workers who had not yet reached a stage of development justifying the application of European laws were still subject to penal sanctions. The Portuguese Government wished to bring as many as possible of the indigenous population under European laws and, in accordance with this policy, all the inhabitants of the Cape Verde Islands and the Portuguese Indies had been exempted from the special native statute and were not subject to penal sanctions in connection with contracts of employment. This had not yet been possible in the case of the majority of the indigenous inhabitants of Angola, Moçambique and other Portuguese territories, and penal sanctions, including those referred to in the Convention, still applied to them.

The Committee concluded that considerable progress had been made towards abolition of penal sanctions for breaches of contract by indigenous workers since the adoption of the 1939 Convention. However, except for one member, it did not consider the present situation satisfactory. Penal sanctions changed the normal contractual relationship between employer and employee into a sort of legalised servitude which was incompatible with modern conceptions of human dignity and human rights. It rejected the argument that penal sanctions have an educative value; it considered that, on the contrary, they are an obstacle to healthy industrial relations, a source of labour unrest and an ineffectual measure in practice. It also rejected the idea that abolition of penal sanctions would affect labour stability or lead to industrial unrest or other difficulties, and considered that the ease with which the transition from a system of contracts buttressed by penal sanctions to a system involving merely civil obligations had been achieved in various non-metropolitan countries offered clear proof of the wrongness of such assertions.

The Committee therefore felt that the Governing Body should communicate with the member States concerned, asking the countries which have not ratified the Penal Sanctions (Indigenous Workers) Convention, 1939, to re-examine the possibility of doing so at an early date, and directing attention to the advances made in many territories since the adoption of the Convention as evidence that

abolition of penal sanctions is now practicable, and to the view of the Committee of Experts regarding the wrongness of penal sanctions on moral grounds, their ineffectiveness in practice and the very cogent reasons which exist for their immediate and general abolition.

It further suggested that the Governing Body should consider whether the 1939 Convention might be supplemented by a Recommendation providing (1) for the immediate abolition of sanctions of a penal nature in connection with women workers, workers who have served for a period or periods amounting to over two years with the same employer, and workers with unwritten or short-term contracts ; (2) for the immediate abolition of sanctions of a penal nature for neglect of duty or lack of diligence on the part of the worker and for absence from work without permission or valid reason ; (3) for the abolition of all penal sanctions not later than 31 December 1955 ; (4) for regular submission of reports and statistics to the International Labour Office on the progress made towards abolition of all penal sanctions.

The Governing Body subsequently authorised the Director-General to communicate these views and recommendations of the Committee of Experts to the member States concerned and to the Trusteeship Council, and agreed that the question should be brought up for consideration when the agenda for the 37th Session of the Conference (1954) is being prepared.

Migrant Labour

The Committee had already considered the problem of migrant labour at its first meeting (London, March 1947) and, as on that occasion, the Office had prepared a report. The first part was devoted to an analysis of the situation of indigenous workers in their original or rural environment. It was shown that, except in very rare cases, the African is driven to leave his home for the towns by bitter necessity—hunger, the need to feed and clothe his family, lack of land for cultivation, and the difficulty of maintaining a decent standard of living. If a balance is to be achieved between the rural and urban population, the attraction of the towns must be offset to some extent by improving conditions in the rural areas. If the African peasant is to go on tilling the land, he must be able to earn enough from it to provide a decent living for himself and his family. The new balance of population can be achieved only through increased productivity.

In view of these facts, the first part of the report concluded that in order to improve conditions in the rural areas it would be necessary to prepare large-scale programmes for soil rehabilitation, agricultural reform and development, and the improvement of rural services of all kinds. The formulation and the detailed implementation of such programmes, however, would require the co-operation of other specialised international organisations to ensure the largest possible measure of success.

After discussion, the Committee of Experts adopted a text recommending that governments should intensify their efforts to improve social and economic conditions in the rural areas, and invite the competent international organisations (the United Nations, the I.L.O., F.A.O., U.N.E.S.C.O., W.H.O., the International Bank for Reconstruction and Development) to co-operate in studying the problems and to give technical and financial assistance. The main points to which attention was drawn were *(a)* land policy, including the regulation of use and alienation, the building up of reserves of land for cultivation and resettlement, bilateral agreements for the use of unoccupied land in neighbouring territories, collective and co-operative cultivation, and the acquisition of unused privately owned land; *(b)* programmes of soil conservation and reconditioning, improved cultivation, mechanisation, irrigation and the setting up of regional industries to process or use rural products; *(c)* programmes for improving animal husbandry; *(d)* the organisation of accessible markets; *(e)* improvement of communications; *(f)* price and marketing policies; *(g)* the provision of technical training and extension services; *(h)* modification of systems of taxation or labour levies that handicap peasant agriculture; *(i)* the development of rural housing, education, diet, etc.

The second part of the report analysed the situation of the workers in the urban centres. It showed that the African worker in the towns is under a heavy handicap. As he is usually unskilled and not very efficient, he is ill-paid, ill-housed and ill-fed. These difficulties discourage the families from settling in the cities, so that workers wishing to lead a normal family life are driven back to the country. Migration from the country to the town and then back to the country is therefore tending to become a permanent pattern. Finally, at a higher level, a class of foreign technicians has become established, and this prevents the African from improving his social position and finding new opportunities.

The second part of the report concluded that the standard of living of urban workers must be raised so as to form a stable industrial working class. An attempt must be made to provide an ordered existence for this mass of uprooted human beings, with opportunity for education and acquiring new skills.

After discussing a draft prepared by the Office, the Committee adopted a detailed text suggesting that a future session of the International Labour Conference might consider the adoption of a Recommendation along the following lines. Governments should make legal provision individually and by agreement for the welfare of migrants on their journeys (transport and rest-camps), for health protection, for ensuring satisfactory wages, for the appointment of welfare officers at the place of work, for enabling workers to correspond with their homes and satisfy their intellectual and religious needs, for the transmission of remittances home or the accumulation of deferred pay, and for ensuring proper arrangements for the migrants' return home. Uncontrolled or uncontrollable migration

should be gradually discouraged by government action, and it should generally be the aim to establish migrants permanently with their families at or near the place of employment unless permanent employment is against the interest of the worker and his family or of the economy of the territory in question.

In connection with these aims, governments should consider the development of town planning and housing programmes ; the fixing of suitable minimum wages, the limitation of advances on earnings and the refusal of credit in company stores ; the establishment (where appropriate) of a public employment service in touch with employment services in other territories ; acceptance of the principle of equal opportunity for all sections of the population and, consequently, the provision of vocational training facilities for indigenous workers or opportunities of advancement to skilled jobs ; trade union and bargaining rights for indigenous workers ; further development of welfare arrangements providing a healthy diet, workmen's compensation, medical care, etc. ; the development of suitable producers' co-operatives (small-scale stockbreeding, poultry farming, fish breeding, market gardening) and retail co-operatives ; the organisation of friendly societies and (where necessary) pensioners' settlements ; and measures to promote permanent settlement (supply of reasonably priced consumer goods, the allocation of available land, aid in setting up commercial organisations). The measures suggested to prevent undesirable migration are the limitation of recruiting to areas with a surplus of labour, and improved organisation and training in the undertakings leading to economy of manpower and higher labour productivity.

The Governing Body subsequently accepted the Committee's suggestion that the question of migrant labour should be brought up for consideration when the agenda for the 37th Session of the Conference (1954) is being prepared, and decided that the conclusions of the Committee would be communicated to the member States and to the Trusteeship Council.

Technical and Vocational Training

The Committee adopted two resolutions on the subject of technical and vocational training. The first draws attention to certain points of special importance in non-metropolitan territories, which may be summed up as follows : (1) training programmes must be planned to provide a flow of skilled workers of all types required by the economy of the territory ; (2) vocational guidance facilities must be available ; (3) basic education is essential and must accompany vocational training if the latter is to be effective ; (4) there must be a balance between theoretical and practical instruction ; (5) a body of competent instructors must be formed ; (6) vocational training opportunities should be open to all sections of the community alike ; (7) there should be advisory bodies to co-ordinate the various vocational

training activities, comprising representatives of the workers and employers as well as of government departments; (8) special consideration should be given to the possible collaboration of governments on a regional basis and to the utilisation of the technical assistance programmes of the United Nations and the specialised agencies. The Governing Body authorised the Director-General to communicate this resolution to the member States and to the international organisations concerned.

The second resolution of the Committee of Experts on problems of technical and vocational training contained three recommendations. The first was that the Office should prepare a study for submission to the next session of the Committee. The study should include *(a)* a detailed survey of training facilities and the progress made in the intervening period in this respect, including special training for physically handicapped persons; *(b)* an analysis of the methods used, with particular emphasis on those used in training for agriculture and for independent trades; *(c)* an analysis of the extent to which the body of principles established in regard to vocational training by I.L.O. meetings has received application in non-metropolitan territories; and *(d)* an account of any relevant technical assistance rendered by the I.L.O. and other bodies.

Secondly, the resolution recommended the fullest possible co-operation of the I.L.O. in regard to any requests for assistance, whether under its normal programme or under the Expanded Programme of Technical Assistance of the United Nations and the specialised agencies, made on behalf of non-metropolitan territories in the field of manpower, with particular reference to the carrying out of manpower surveys and the development of vocational training programmes. Thirdly, it was recommended that the Governing Body should consult the governments concerned on the possibility of the I.L.O. convening regional study conferences (seminars) on vocational training for or including non-metropolitan territories.

The Governing Body authorised the Office to proceed with the study proposed in the first part of the resolution. It instructed the Director-General to draw the attention of the member States concerned to the final recommendation, and to bear it in mind when submitting proposals for future seminars under the auspices of the I.L.O.

Programme of Work of the Office

The Committee recommended that all governments concerned should be asked to review the situation in the territories administered by them as regards the subjects covered by the I.L.O. Conventions, so as to see whether new advances both in law and in practice could not be made, whether further ratifications could not be effected and whether any earlier reservations could not be withdrawn. The Governing Body subsequently authorised the Director-General to send to the member States concerned a communication on the lines suggested by the Committee.

The Committee considered that the needs of the situation and the importance of economic development in underdeveloped areas would fully justify the I.L.O. in giving high priority to suitable programmes of action to influence the social content of economic development in non-metropolitan territories.

The experts recommended that the Governing Body should consider the desirability of convening the Committee at intervals of not more than 18 months. This would enable it to keep the problems with which it is concerned under continuous review and avoid overloading its agenda. Initial effect was given to this recommendation by earmarking funds for a meeting in the budgetary estimates for 1953.

The Committee recommended that the Governing Body should consider the desirability of increasing the number of experts on the Committee coming from the non-metropolitan territories themselves. At present, there are three such experts. The Committee considered that good results would certainly be obtained by combining the knowledge of experts from the non-metropolitan territories as regards the social aspirations of the indigenous populations with the experience of experts from the metropolitan countries. With its membership thus broadened, the Committee could be expected to give valuable assistance in solving the social and labour problems involved. The Governing Body subsequently authorised the Director-General to enter into the necessary consultations with a view to proposing the addition of new members, including persons from the non-metropolitan territories themselves, before the next meeting of the Committee.

The Committee recommended that the Governing Body should consider the desirability of setting up a field office at a suitable place in Africa, similar to the I.L.O. field offices in other parts of the world. This would enable current problems to be studied on the spot, and would facilitate liaison between the I.L.O. and the populations of the African territories. The experts from Africa pointed out that the African Labour Bureau now being set up under the auspices of the Commission for Technical Co-operation in Africa South of the Sahara and also the African Labour Conference are dependent on the Administering Powers, are not truly independent and have no real contact with the populations of the territories; only the I.L.O. could provide such contacts in a satisfactory manner. The Governing Body decided to postpone consideration of this matter until the Director-General could submit a report after consultation with the governments chiefly concerned.

The Committee pointed out how important technical assistance in the form of regional surveys and projects may be where the same problems arise over a large area covering non-metropolitan territories administered by different member States; it considered that regional surveys of the possibilities of developing African handicrafts and home industries might be particularly valuable. These conclusions of the Committee are to be communicated to the member States concerned.

The Committee noted that in 1952 the Office would be associated with the United Nations in work on a series of questions to be discussed at a meeting of the United Nations Special Committee on Information Transmitted under Article 73 *(e)* of the Charter. It recommended certain subjects on which papers might be prepared or studies carried out by the Non-Metropolitan Territories Division of the Office as part of its long-term programme of work: (1) homework conditions; (2) wage systems and structures, particularly in relation to labour productivity; (3) the feasibility of extension of co-operative methods of organisation; (4) industrial relations in a particular area; (5) workers' housing; (6) the extent to which the indigenous inhabitants participate in the work of bodies dealing with social and labour subjects; (7) the present stage of development, structure and other characteristics of the trade unions; (8) a survey of existing law and practice on various subjects to assist administrations to overcome local difficulties in applying internationally agreed standards; and (9) collection and publication of laws and regulations relating to Africa on social and labour subjects. The Governing Body subsequently authorised the Director-General to give effect to these recommendations as far as possible, dealing first with the points on which positive results might be achieved rapidly. The Office will submit a report to a forthcoming session of the Governing Body, suggesting an order of priority for the proposed studies.

Finally, the Committee invited the Office to consider ways and means of organising study meetings (seminars) on labour and social problems in regions where non-metropolitan territories predominate. The Governing Body instructed the Director-General to bring this recommendation to the attention of the member States concerned and to bear it in mind when submitting proposals for future seminars under the auspices of the I.L.O.

Food and Catering in Norwegian Ships

The adoption by the 28th (Maritime) Session of the International Labour Conference of two Conventions dealing respectively with food and catering on board ship and the certification of ships' cooks stimulated the study of these questions in a number of maritime countries. Particular attention has been devoted in Norway to the diet of seafarers, and a special committee of representatives of shipowners, seafarers and the health authorities presented a report on this subject towards the end of last year.[1] *While some of the conclusions may reflect conditions that are peculiar to Norway's merchant marine, many of the problems dealt with are common to most seafarers, and the considerations and recommendations of the Norwegian committee are therefore likely to be of general interest.*

The provision of proper food on board has for generations been a bone of contention in the shipping industry. The need for good food as one of the most important aspects of health and welfare at sea has long been recognised, but up to recent times the provision of a satisfactory diet was hindered by the difficulty of preserving foods during long voyages through changing climates.

There has been progress from the hard shipboard life of the old days, with its unbalanced and often insufficient fare resulting in scurvy and other forms of malnutrition, to a less hard life in recent times, with plenty of food. But, because of old traditions, the diet is still often one-sided and the meals unduly heavy, and this (sometimes combined with lack of exercise) has resulted in numerous digestive troubles. During the last war when ships had to be kept sailing at any cost, everything was done for the health and welfare of the seafarers. The traditional ship's fare and the master's preoccupation with keeping food costs to a minimum quickly became things of the past, and catering in many ships attempted to meet almost every demand; fresh fruit and vegetables, milk and other perishable foods that were formerly rare items in the seafarers' diet and normally available only when the ship was in port were served in large quantities even when the ship was far out at sea.

In the post-war years, it was only natural that the seafarers should continue to demand the ample diet to which they had been

---

[1] *Innstilling fra Komiteen for kosthold til sjøs* (Oslo, 1951).

accustomed during the war. This was the case in Norway. Soon, however, complaints began to appear in the press about the high cost of victualling and the waste of food ; the abundance on board ship of rationed foods and foods not available at home was also commented on. When, in addition, the medical authorities discovered from the statistics on the health of seafarers that the number of cases of stomach disorders and other illnesses arising from improper diet was very large, notwithstanding the fact that the cost of feeding was among the highest in the world, it was concluded that the diet provided was unsatisfactory and that something should be done about it.

Training of Catering Staff

Even before the appointment of a committee to study the diet provided at sea, the problem of catering had already been approached from another angle—that of the training of catering staff. As in most other maritime countries, special committees were set up in Norway to consider the Conventions adopted in Seattle in 1946. One of the committees dealt with all aspects of the training of seafarers, and had already made proposals for regulations on the training of cooks and stewards in accordance with the Certification of Ships' Cooks Convention.[1] In view of the importance of having fully trained catering staffs in ships, it had recommended a considerable widening of the theoretical and practical qualifications required, together with pre-sea training, an extension of the course in cooks' training schools from 5 to 10 months, and the provision of courses of shorter duration for chief stewards. It considered that after a short transitional period the certificate of proficiency should only be awarded in these categories to persons who had attended the school courses (hitherto practical experience had been a sufficient qualification for employment as a cook or chief steward in Norwegian merchant ships).

Investigation of Current Catering Practice

The committee appointed to investigate the diet of seafarers recognised at the outset that catering on board ship cannot be fairly compared to catering ashore ; conditions are usually quite different, both as regards the availability of supplies and storage facilities, and as regards ease of cooking and serving meals. On the other hand, life on board ship is somewhat monotonous and this makes for a greater concentration of interest on meals. It is therefore of great importance for welfare that the composition and times of the meals should be satisfactory to all, and that there should be no difference in the quality of food served to officers and crew.

When the committee met, no general data on catering practice were available except for records of the cost of food. It therefore obtained from a number of ships engaged in different types of trade detailed information on the number and composition of meals, etc.

[1] Ratified by Norway on 1 March 1952.

On the basis of the replies, the personal knowledge of the committee members and other sources of information, the committee came to the conclusion that catering practice suffers from the following defects :

(1) there is too much heavy food ;
(2) meals are too frequent in relation to the diet ;
(3) the consumption of coffee is too high ;
(4) the refrigerated storage facilities for provisions are often inadequate ;
(5) the catering personnel is not always fully qualified ;
(6) the costs of victualling are usually too high.

The reports showed that meat is served for dinner more than four times a week in 90 per cent. of the ships. Hot suppers of meat or fish are served six times a week in 75 per cent. of the ships and a hot dish of meat or fish is served for breakfast on more than half of the days in the week in 90 per cent. of the ships. On the days when a hot supper is not served, it is replaced by a generous assortment of cold cuts. Even if conditions vary to a certain degree, it is believed that the above data reflect the general situation. The medical members of the committee all considered that the heaviness of this diet is detrimental to the health of the seafarers.

Meals at sea are at present normally served at the following hours : 6.30-7 a.m. (coffee, etc.) ; 8-8.30 a.m. (breakfast) ; 12 a.m.-1 p.m. (dinner) ; 3-3.30 p.m. (coffee, etc.) ; 6-6.30 or 7 p.m. (supper). In view of the heavy diet, the medical members of the committee considered that the intervals between meals are too short to give the digestive system adequate periods of rest.

In view both of working conditions at sea and of Norwegian coffee-drinking habits, it is understandable that the consumption of coffee on board ship should be relatively high. On the available evidence, however, the medical experts feel that this high consumption of coffee must be considered detrimental to health.

Many merchant ships have only one cold-storage room and one cooling room. These are often too small and damp, with insufficient ventilation. When several kinds of provisions are stored in the cold-storage room, some of them will after a certain time be contaminated by the others. In addition, a lack of constant temperature in the refrigerated store rooms is apt to damage the provisions, and considerable changes in temperature often take place during the ship's stay in port.

The catering staff on board a ship has a difficult and demanding task. Because of the importance of their work on board and the criticism to which they are exposed, it is of the utmost importance that they should have a first-class technical training which will give both sufficient authority and the ability to solve the many problems connected with the preparation and serving of adequately varied and wholesome meals.

Though it is natural that the daily cost of food at sea should be higher than ashore, many ships show unreasonably high expenditure. The outlay does not usually appear to result in a healthy and appropriate diet, and for this reason the high costs must be considered still less justifiable. The committee mentions the following causes, without attempting to assess their relative importance: *(a)* the present eating habits on board ship; *(b)* the lack of properly qualified catering personnel; *(c)* the difficulty of making the most suitable and economic purchases of provisions; *(d)* the lack of possibilities for the proper storage of provisions; *(e)* wasteful methods of using food.

Recommendations for Improved Diet

The committee's main recommendations are summarised below. It should be emphasised that they are intended to meet Norwegian conditions and are therefore not necessarily of general validity.

(1) The committee drew up a series of menus covering a six-week period, which provide a well-balanced diet and avoid having more than one heavy meal on the same day. Account was, however, taken of the fact that the seafarers still want the traditional dish of salt meat with peas and pork at least once a week. In addition, it was recommended that fresh fruit or fruit juice should be on every breakfast table, that raw vegetable salads and herring salad should be on every supper table, and that when margarine is used it should be vitaminised. In regard to bread, special recipes were worked out which would satisfy all requirements within the baking possibilities found on board most ships. It was recommended that various types of bread should be provided in order to avoid monotony.

(2) The committee proposed various changes in the times for meals. It was suggested that early coffee should be abolished and breakfast served from 7.30 to 8 a.m., the day's work starting after breakfast at 8 o'clock. It was also recommended that afternoon coffee should be served immediately after dinner in order to eliminate the present separate afternoon coffee from 3-3.30 p.m. The meal times would then be as follows: 7.30-8 a.m. (breakfast); 12 a.m.-1 p.m. (dinner, followed by coffee); 6-6.30 p.m. or in port 5.30-6 p.m. (supper). These hours could, if necessary, be modified in port when loading and unloading starts before 8 a.m. Persons on watch would be allowed to continue the present system of morning coffee and afternoon coffee at 6.30 a.m. and 3.30 p.m. if they so wished.

(3) The committee recommended the setting up of a working party of refrigeration experts who, in co-operation with representatives of the shipping industry, could work out special proposals for the improvement of the cold-storage facilities on board. This working party should consider especially the improvements needed in the older ships.

(4) The committee referred to the valuable work already done by the committee on training, and found no need to go any further into this question. It emphasised, however, the desirability of ten weeks' pre-sea training for galley, saloon and mess boys, the need for an up-to-date, approved instruction book for cooks' and stewards' training schools, and the desirability of holding identical examinations at these schools.

(5) The committee requested its medical members to prepare a simply-written information pamphlet on catering at sea, explaining the committee's recommendations. After this has been distributed, the interested organisations would meet to take steps to put the recommendations into practice.

In conclusion, the committee recognised that changes in catering practice are easier to formulate than to put into effect. People have their own fixed eating habits, and any pressure for changes from the outside tends to cause irritation. The committee was therefore of the opinion that compulsory regulation would bring no results. The changes must be completely voluntary, and for this reason it should be brought home to everybody on board, both officers and crew, that the present diet is very often injurious to health, reduces working capacity and also shortens life. The committee therefore addressed itself to every man on board ship and to all the seafarers' organisations, and suggested that, after some time has elapsed, tests should be made to see what improvements have taken place.

Comments on the Committee's Recommendations

The committee requested that its report should be made public in the hope that a full discussion on the subject could take place. As was to be expected on this sensitive subject, the various groups concerned were not slow to express their views. Since the seafarers themselves had been represented on the committee, their views had been taken into account, and it may be said that the general reaction to the report was favourable.

However, several criticisms were voiced during various meetings of seafarers. It was suggested that the committee, in its attempts to simplify the diet on board, had gone too far and seemed to be trying to bring the diet at sea into line with the usual diet ashore. This was wrong because, owing to the special conditions under which seafarers work and live, the diet at sea should always be on a higher level than is general ashore. Owners and stewards were warned against following too strictly the recommendations of the committee as this would easily lead to friction on board. Moreover, it should not be possible for the crews to tell the day of the week by the food served for dinner; the suggested menus should be treated only as guides, and any future changes should be made gradually over a long period of time.

One detail which was strongly objected to was the recommendation that afternoon coffee should be abolished. It was pointed out that many of the seafarers work in the open, and the proposed interval without refreshment from midday to 6 p.m. at sea was therefore considered too long. It was also felt that the recommendations for breakfast menus were inadequate as regards both quantity and quality.

Some time must elapse before it is known whether the committee's recommendations are widely adopted in practice, and it will be still longer before reliable evidence as to the effects on the health of Norwegian seafarers is forthcoming. In the meantime, the publication of the report may help to stimulate investigation of the problem in other countries. It is an undoubted fact that in most maritime countries for which statistics are available the incidence of stomach disorders is particularly high among seafarers. This may be presumed to be due at least in some measure to the type of diet served on board ship. Anything that can be done to improve the standards of food and catering on board ship will undoubtedly have beneficial effects on the health of seafarers, as well as making a sea career more attractive. But, as the Norwegian committee noted, the men of the sea are strongly bound by tradition, and it would be unduly optimistic to expect a complete revolution in their dietary habits overnight. There is, however, undoubtedly scope for a useful educational campaign in this field.

STATISTICS

The periodical statistics of labour conditions in different countries are at present published in the *Review* as follows:

Monthly: Unemployment and employment; consumer price indices.

Two-monthly: January, March, etc.: Wages and hours of work, general level;

February, April, etc.: Wages and hours of work in manufacturing.

Unemployment and Employment

The tables show—

I. Number of *unemployed* or applicants for work.

II. Indices of the *general level of employment.*

III. *(a)* Indices of the level of *employment in manufacturing.*

(b) Indices of total hours worked in *manufacturing employment.*

Consumer Price Indices

The table presents general consumer price indices usually covering the main groups of expenditure (food, fuel and light, clothing, rent, and miscellaneous); and also the corresponding indices for the food group only.

Wages

The table in this issue shows the *general level* of wages, giving rates or earnings per hour, day, week or month.

Changes in the Table

Czechoslovakia. The series for Czechoslovakia has been discontinued owing to the lack of current data. The latest figures available were given in the March 1952 and preceding issues of the *Review.*

New Zealand. The index numbers of the general level of weekly wage rates (including agriculture) for adult males and females have been replaced by series for the general level of minimum wage rates per week (excluding agriculture) for adult males and for adult males and females combined.

Hours of Work

The table in this issue shows the *general level* of hours of work.

SYMBOLS AND TYPES EMPLOYED

. = inapplicable or figures not available.
... = not yet received.
* = provisional.
— = nil or negligible.
r = revised since previous issue.
° = represented by a few branches only.
° = relates to men only (wages tables).

A line ——— placed between two figures in a column indicates that the figures above and below it are not strictly comparable or that a new series begins below the line (see footnotes).

Bold type: index number (100) in base year.

Italics: index numbers based on another year than 1937.

The countries are arranged by continents in the alphabetical order of their English names.

Note: Figures for the separate industries, etc., covered by these series are given in tables 7, 8, 11, 14 and 18 of the *Year Book of Labour Statistics, 1949-50*; index numbers of the groups fuel and light, clothing, and rent, covered by the consumer prices indices, are given in table 23 B.

Further information on the scope and significance of these statistics is given in each January issue of the *Review* (see Vol. LXV, No. 1, January 1952, pp. 106-16).

Unemployment and Employment

TABLE I. STATISTICS OF UNEMPLOYMENT

Date	Africa		America			
	Southern Rhodesia	Union of South Africa	Canada			
	V (B)	V (B)	I		II	
				%		%
1937	.	4 510	406 000 [1]	9.1 [1]	.	.
1946	.	5 390	143 000	3.0	96 760	4.5
1947	253	10 266	98 000	2.0	68 254	3.0
1948	280	12 173	103 000	2.1	88 909	3.6
1949	245	15 138	137 000	2.7	135 624	5.4
1950	244	16 282	168 000	3.3	162 176 [r]	6.0 [r]
1951	192	10 190	108 750	2.1	147 536	4.8
1951 : Mar.	234	10 864	172 000	3.3	226 470 [2]	6.2 [r]
Apr.	205	10 839	.	.	136 848	4.6 [r]
May	196	10 619	.	.	88 900	3.0 [r]
June	195	10 065	85 000	1.6	86 523	2.8 [r]
July	226	9 445	.	.	83 889	2.7 [r]
Aug.	201	9 093	78 000	1.4	80 871	2.6 [r]
Sep.	177	9 368	.	.	83 140	2.7 [r]
Oct.	167	9 253	.	.	99 797	3.2 [r]
Nov.	125	9 740	100 000	1.9	153 651	4.8
Dec.	120	10 137	.	.	238 950	7.8
1952 : Jan.	143	10 734	.	.	287 811	...
Feb.	...	...	.	.	...	...
Mar.	...	...	.	.	...	...
Persons cov. (thousands)	.	.	5 284 (1951)		3 051 (VI-1951)	

Date	America *(concl.)*					Asia			
	United States		Chile	Puerto Rico		Union of Burma [3]	Ceylon	India	Israel [4]
	I		V (B)	I		V (A)	V (A)	V (A)	V (B)
		%			%				
1937	7 700 000 [1]	14.3 [1]	2 315	.	.	.	.	.	.
1946	2 270 000	3.9	3 433	80 000 [5]	12.0 [5]	.	29 182	.	1 870
1947	2 142 000	3.6	3 700	76 000	11.0	3 116 [6]	32 995	.	2 772
1948	2 064 000	3.4	3 203	71 000	10.3	2 614	53 513	224 900	1 320 [7]
1949	3 395 000	5.5	3 445	79 000	11.3	844	68 358	293 043	6 351
1950	3 142 000	5.0	2 937	114 000	14.8	1 331	68 471	314 336	5 908
1951	1 879 000	3.0	2 562	...	...	...	56 845	338 402	...
1951 : Mar.	2 147 000	3.4	2 754	98 000	12.4	2 618	60 953	337 092	4 980
Apr.	1 744 000	2.8	2 761	95 000	12.1	2 654	58 534	331 372	5 053
May	1 609 000	2.6	2 624	94 000	12.1	2 729	56 016	328 837	6 073
June	1 980 000	3.1	2 644	103 000	13.1	2 769	54 999	330 369	5 765
July	1 856 000	2.9	2 484	...	...	...	54 510	343 730	5 597
Aug.	1 578 000	2.5	2 417	...	...	...	54 458	358 814	5 615
Sep.	1 606 000	2.5	2 450	...	...	...	53 621	354 136	5 384
Oct.	1 616 000	2.5	2 556	...	...	...	53 858	331 192	6 037
Nov.	1 828 000	2.9	2 463	...	...	...	54 229	327 660	7 369
Dec.	1 674 000	2.7	2 711	...	...	...	52 723	328 719	...
1952 : Jan.	2 054 000	3.3	...	...	...	...	...	...	...
Feb.	2 086 000	3.4	...	...	...	...	...	...	...
Mar.	...	...	...	...	...	...	...	...	...
Persons cov. (thousands)	62 867 (1951)		.	770 (1950)		.	.	.	.

I. Labour force sample surveys.
II. Compulsory unemployment insurance statistics.
III. Unemployment relief statistics.
IV. Trade union returns.
V. Employment office statistics.
V (A) Applicants for work registered.
V (B) Unemployed registered.

[1] Official estimate. [2] Incl. claimants for supplementary benefits. [3] Rangoon.
[4] Daily average during the month. [5] Mar.-Dec. [6] June-Dec. [7] Jan.-Mar., July-Dec.

TABLE I. STATISTICS OF UNEMPLOYMENT *(cont.)*

Date	Asia *(concl.)*			Europe			
	Japan		Pakistan	Austria		Belgium	
	I		V (A)	V (B) [1]		II	
		%			%		%
1937	295 443 [2]	3.7 [2]	.	320 961	.	125 929 [3]	13.8
1946	1 590 318 [4]	5.4 [4]	.	74 105	.	67 292	4.5
1947	370 000 [5]	1.1 [5]	.	31 737	1.7	67 560	3.5
1948	242 000	0.7	77 983	43 409	2.3	129 203	6.4
1949	378 000	1.0	70 996	91 238	4.6	234 896	11.7
1950	436 000	1.2	96 439	124 850	6.2	223 537 [r]	10.9 [r]
1951	...	...	103 913	116 243	5.7	205 964 *	10.0*
1951: Mar.	410 000	1.2	96 602	159 622	7.9	185 801	9.1
Apr.	390 000	1.1	93 988	117 759	5.8	187 052	9.1
May	350 000	0.9	97 210	96 837	4.8	182 430	8.9
June	340 000	0.9	96 251	79 613	3.9	190 698	9.3
July	390 000	1.0	100 180	73 114	3.6	200 189	9.8
Aug.	350 000	0.9	113 690	69 392	3.4	199 190	9.7
Sep.	310 000	0.8	116 008	66 970	3.3	193 528	9.5
Oct.	470 000	1.2	114 847	70 743	3.4	197 135	9.6
Nov.	460 000	1.2	118 638	91 677	4.4	213 245	10.4
Dec.	...	...	116 486	151 031	7.4	278 105	13.6
1952: Jan.	...	...	113 787	196 375 [r]	...	304 579	14.9
Feb.	...	...	...	...	...	307 341	15.0
Mar.	...	...	...	...	...	...	...
Persons cov. (thousands)	36 160 (1950)		.	2 039 (1951)		2 047 (VI-1950)	

Date	Europe *(cont.)*						
	Denmark		Finland	France		Germany (Fed. Rep.)	
	[6]		V (B)	III	V (A)	V (B) [7]	
		%					%
1937	95 630	21.7	3 695 [8]	354 554	379 994	.	.
1946	51 636	8.9	892	15 663	56 633	.	.
1947	51 998	8.9	—	7 389	45 777	595 242 [9]	.
1948	51 644	8.7	3 473	16 737	77 803	603 858	4.3
1949	59 041	9.6	25 683	39 748	131 062	1 262 997	8.5
1950	54 829	8.7	19 194	52 355	152 891	1 585 246	10.2
1951	63 024	9.7	5 622	40 297	120 128	1 432 323 [r]	9.0
1951: Mar.	94 659	14.6	16 534	53 986	144 877	1 566 744	9.9
Apr.	42 609	6.6	10 454	50 134	140 387	1 446 171 [r]	.
May	29 962	4.6	3 373	45 215	122 956	1 386 917 [r]	.
June	26 017	4.0	—	38 813	104 593	1 325 747 [r]	8.3
July	35 936	5.5	—	32 989	90 802	1 292 058	.
Aug.	38 569	5.9	—	31 140	90 675	1 259 311	.
Sep.	38 593	6.0	45	28 577	93 158	1 234 979	7.7
Oct.	44 357	6.8	174	27 341	101 768	1 213 936	.
Nov.	75 049	11.5	1 392	30 250	112 400	1 306 596	.
Dec.	137 302	21.0	3 580	33 038	116 416	1 653 553	10.2
1952: Jan.	132 113	20.2	7 981	37 875	132 033	1 825 407	.
Feb.	104 528	16.0	10 368	41 158	140 076	1 892 884 [r]	.
Mar.	...	...	...	...	...	...	...
Persons cov. (thousands)	634 (1950)		.	.	.	15 989 (1951)	

For an explanation of the Roman numerals used in this table, see p. 644.

[1] Prior to 1947, applicants for work registered. [2] Official estimate. [3] Voluntary unemployment insurance statistics. [4] Census of 26 Apr. [5] Oct. [6] Trade union fund returns of unemployed members. [7] Figures prior to Sep. 1948 included all unemployed persons available for work under Order No. 3 of the Allied Control Authority, whether actually seeking work or not. [8] Applicants for work registered. [9] Mar.-Dec.

TABLE I. STATISTICS OF UNEMPLOYMENT *(cont.)*

Date	Europe *(cont.)*					
	Ireland			Italy	Luxembourg	Netherlands
	II		V (A)	V (B)	III	V (B)
		%				
1937	.	.	81 760	874 000	18	368 904
1946	35 067	10.6	59 726	1 324 000	21	88 742
1947	33 266	9.3	55 623	1 620 000	50	45 889
1948	35 129	9.4	61 203	1 791 800 [1]	17	42 422
1949	34 906	9.0	60 606	1 672 708	20	62 335
1950	30 347	7.6	53 415	1 614 940	38	79 071
1951	30 406	7.3	50 453	1 721 087	...	92 778
1951 : Mar.	33 101	7.9	58 721	1 593 957	23	90 508
Apr.	32 270	7.7	58 000	1 676 339	25	81 450
May	29 274	7.0	50 738	1 707 876	21	69 103
June	25 510	6.1	37 286	1 696 076	13	60 980
July	25 174	6.0	36 355	1 679 910	...	67 585
Aug.	25 831	6.2	37 192	1 670 220	...	78 714
Sep.	26 045	6.2	38 606	1 667 644	...	78 529
Oct.	28 170	6.7	41 296	1 694 143	...	93 252
Nov.	34 312	8.2	58 821	1 753 251	...	121 140
Dec.	33 030	7.9	59 459	1 871 100	...	153 809
1952 : Jan.	42 966	10.1	73 037	...	...	172 837 [r]
Feb.	43 821	10.3	74 845	...	...	...
Mar.	42 935	10.1	70 093	...	...	...
Persons cov. (thousands)	426 (X-1951)		.	.	.	.

Date	Europe *(cont.)*							
	Norway		Portugal	Saar		Spain	Sweden	
	V (B)		V (B)	[2]		V (B)	IV	
		%			%			%
1937	29 881 [3]	.	17 158 [4]	.	.	.	67 351	10.8
1946	12 246 [5]	2.0 [5]	2 387	.	.	178 165	27 554 [6]	3.2 [6]
1947	8 514 [5]	1.2 [5]	1 799	.	.	138 771	24 446	2.8
1948	9 026	1.3	1 494	6 640 [7]	2.5 [7]	117 020	25 747	2.8
1949	7 715	1.0	1 586	6 070	2.2	160 056	26 116	2.7
1950	8 972	...	2 142	6 343	2.2	166 182	22 124	2.2
1951	11 140	...	2 325	...	...	144 238 [r]	...	...
1951 : Mar.	22 543	...	2 236	4 614	1.6	167 871	29 746	2.9
Apr.	17 034	...	2 229	4 587	1.6	160 272	17 512	1.7
May	6 386	...	2 294	4 239	1.4	154 220	11 810	1.1
June	3 515	...	2 296	3 707	1.3	134 935	11 894	1.1
July	2 478	...	2 356	3 899	1.3	126 797	14 740	1.4
Aug.	3 482	...	2 323	4 113	1.4	128 949	11 934	1.1
Sep.	4 617	...	2 346	3 883	1.3	126 306	9 650	0.9
Oct.	6 313	...	2 388	3 875	1.3	125 109	9 670	0.9
Nov.	10 099	...	2 420	3 761	1.3	126 058 [r]	13 453	1.4
Dec.	15 046	...	2 482	...	...	116 943 [r]	34 128 [8]	3.6 [8]
1952 : Jan.	17 756	...	...	...	...	116 467	...	...
Feb.	17 016	...	...	...	...	...	...	...
Mar.	...	...	...	...	...	...	...	...
Persons cov. (thousands)	.		.	282 (1950)		.	999 (1950)	

For an explanation of the Roman numerals used in this table, see p. 644.

[1] Jan.-June. [2] Labour registration statistics. [3] Applicants for work registered. [4] Dec. [5] Excl. Finnmark and evacuated communes in Troms. [6] Since 1946 incl. agricultural workers. [7] June-Dec.

TABLE I. STATISTICS OF UNEMPLOYMENT *(concl.)*

Date	Europe *(concl.)*					
	Switzerland		United Kingdom			
	II [1]	V (B) [1]	V (B) [1]		V (B) [2]	
	%		%		%	
1937	10.0	57 949	1 324 027	8.5	205 063	1.5
1946	1.0	4 262	390 106 [3]	2.5	4 058 [3]	—
1947	0.8	3 473	342 295 [3]	2.0	156 028 [3]	1.0
1948	0.6	2 971	325 818 [4]	1.5	8 555 [4]	—
1949	1.6	8 059	328 426	1.6	9 571	—
1950	1.8	9 599	332 057	1.6	9 036	—
1951	0.8	3 798	264 103	1.2	17 258	—
1951 : Mar.	1.0	4 397	297 835	1.4	7 549	—
Apr.	0.4	1 800	273 486	1.3	7 123	—
May	0.3	1 501	233 451	1.1	7 237	—
June	0.2	1 191	206 686	1.0	7 838	—
July	0.2	1 159	198 268	0.9	11 473	0.1
Aug.	0.2	1 237	215 852	1.0	11 850	0.1
Sep.	0.2	1 384	226 651	1.1	13 998	—
Oct.	0.3	1 841	257 947	1.2	31 900	0.2
Nov.	0.6	3 301	283 120	1.3	39 839	0.2
Dec.	1.8	7 488	294 084	1.4	48 609	0.2
1952 : Jan.	.	15 643	354 837	1.7	71 069	0.3
Feb.	.	12 536	370 821	1.7	75 813	0.4
Mar.	.	...	...	...	...	...
Persons cov. (thousands)	580 (1950)	.	21 216 (VI-1951)			

Date	Oceania					
	Australia		Hawaii		New Zealand	
	IV	[5]	I [6]		II [7]	V (B)
	%			%		
1937	9.3	.	.	.	.	.
1946	1.4	7 603	2 133	1.1	172	386
1947	1.2	6 684	2 953	1.6	47	92
1948	0.9	2 629	8 741	4.5	33	67
1949	1.9	10 331	25 224	12.9	48	92
1950	0.8	1 231	22 763	11.8	21	37
1951	0.7	791	10 340	5.3	14 [3]	38
1951 : Mar.	.	1 190	11 482	6.0	10	12
Apr.	.	670	10 769	5.6	10	29
May	0.8	671	11 142	5.8	21	74
June	.	604	12 789	6.5	27	60
July	.	630	9 998	5.0	16	39
Aug.	0.6	367	8 816	4.3	20	39
Sep.	.	505	8 428	4.3	16	68
Oct.	.	392	7 750	4.0	12	54
Nov.	0.7	719	8 000	4.2	13	25
Dec.	.	2 067	7 070	3.7	14	29
1952 : Jan.	.	...	7 800	4.1	10	36
Feb.	...	...	7 800	4.1	5	29
Mar.	.	...	...	...	...	...
Persons cov. (thousands)	861 (1951)	.	184 (XII-1951)		.	.

For an explanation of the Roman numerals used in this table, see p. 644.

[1] Wholly unemployed. [2] Temporarily unemployed. [3] Excl. persons classified as unsuitable for ordinary employment. [4] July-Dec. Until June 1948 the statistics referred to persons insured under the Unemployment Insurance Acts. With the introduction in July 1948 of the National Insurance Acts, the coverage of the series has been extended to include all registered unemployed, with the exception of registered severely disabled persons unlikely to obtain work other than under special conditions, and the percentages are based on total employees aged 15 years and over insured under the Acts. [5] Unemployment benefit statistics. [6] For 1946 and 1947, annual estimates (June). [7] Persons in receipt of unemployment benefit.

TABLE II. STATISTICS OF EMPLOYMENT IN GENERAL

Indices of numbers employed

Date	Africa		America			
	Union of South Africa		Canada		United States	
	Europeans	Total			B.L.S. [1]	B.C. [2]
	IV (A/B)		IV (A)	I	IV (A/B)	I
	M.I.T. [3]		M.I.T.C. [3]	A.M.I.T.C.	M.I.T.C.	A.M.I.T.C.
	W.S.		W.S.	[4]	W.S.	[4]
1937	77.3	77.8	60.7	.	69.5	78.0 [5]
1946	94.1	96.8	.	95.3	93.7	93.0
1947	96.8	98.7	95.9	98.6	98.1	97.7
1948	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**
1949	102.9	104.3	100.3	102.0	97.3	98.9
1950	103.8	106.3	101.8	101.9	99.8	101.0
1951	...	...	109.2	106.1	...	102.7
1951 : Mar.	104.9	108.6	104.4	102.5	103.7	101.3
Apr.	104.9	109.0	105.0	.	104.1	101.1
May	105.0	109.9	106.4	.	104.6	103.1
June	104.8	110.2	109.3	107.5	105.3	104.1
July	104.8	110.1	111.3	.	105.0	105.3
Aug.	104.8	110.5	111.7	109.5	105.7	105.5
Sep.	104.8	110.2	112.4	.	106.2	103.7
Oct.	104.8	109.9	113 0	.	106.1	104.1
Nov.	...	...	113.0	104.7	106.0 *	103.3
Dec.	...	...	113.1	.	107.6 *	102.8
1952 : Jan.	...	...	109.6 *	.	104.0 *	100.6
Feb.	...	...	...	...	...	100.6
Mar.	...	...	...	...	...	...
Persons cov. (thousands) [6]	253	950	.	4 879	44 201	59 378

Date	America (concl.)	Asia		Europe		
	Puerto Rico	Japan		Austria	Belgium [7]	France
	I	I		II	II	IV (A)
	A.M.I.T.C.	A.M.I.T.C.	M.I.T.C.	A.M.I.T.C.	M.I.T.C.	M.I.T.C.
	[4]	[4]	W.S.	W.S.	W.S.	W.S.
1937	.	.	.	73.2	.	92.8
1946	95.4 [8]	.	.	91.5	76.8 [9]	92.1
1947	99.7	100.2 [10]	97.4 [10]	98.5	97.2	97.4
1948	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**
1949	101.5	104.2	99.0	100.4	94.9	101.7
1950	107.0	103.3	102.3	100.5	96.8	102.1
1951	...	...	...	102.5	...	104.7
1951 : Mar.	112.5	101.2	111.0	98.9	.	.
Apr.	112.5	103.3	112.7	101.6	.	103.8
May	111.9	106.9	110.1	103.1	.	.
June	111.9	109.1	109.4	104.3	...	.
July	...	108.5	110.5	105.1	.	105.0
Aug.	...	106.7	113.5	105.8	.	.
Sep.	...	106.2	113.6	105.9	.	.
Oct.	...	110.0	112.9	106.0	.	105.9
Nov.	...	107.9	112.5	105.0	.	.
Dec.	...	...	...	101.0	...	.
1952 : Jan.	...	...	...	97.9	.	105.5
Feb.	...	...	...	...	.	.
Mar.	...	...	...	...	.	.
Persons cov. (thousands)	614	34 596	11 750	1 876	1 702	7 534

I. Labour force sample surveys. II. Compulsory social insurance statistics (sickness, accidents, etc.). III. Labour registration statistics. IV. Statistics of establishments. IV (A) : all establishments of a given importance ; IV (B) : representative sample of establishments ; IV (A/B) : type B series (for the recent period) linked to a type A series. A. Agriculture. M. Mining. I. Industry (manufacturing industries and construction). T. Transport. C. Commerce. W. Wage-earners. S. Salaried employees.

[1] Bureau of Labor Statistics. [2] Bureau of the Census. [3] Incl. logging. Monthly figures : first of the month. [4] Incl. all categories of workers in the labour force. [5] B.L.S. estimations. [6] Figure for persons covered relates to 1948 unless otherwise specified. [7] Annual figures : June. [8] Mar. [9] Excl. temporary workers of the national and local railways. [10] Oct.

TABLE II. STATISTICS OF EMPLOYMENT IN GENERAL *(concl.)*

Indices of numbers employed

Date	Europe *(cont.)*					
	Germany (Fed. Rep.)	Ireland	Luxembourg	Netherlands	Norway	Saar
	IV (A)	II	IV (A)	II	II [1]	III
	M.I.T.C.	A.M.I.T.C.	M.I.T.C. [2]	M.I.T.C.	[3]	M.I.T.C.
	W.S.	W.S.	W.	W.S.	W.S.	W.S.
1937	.	87.0	98.5	67.8	.	.
1946	.	92.9	87.1 [3]	79.9	*97.7*	80.0 [3]
1947	.	96.3	90.9	90.1	*104.7*	94.1
1948	**100.0**	**100.0**	**100.0**	**100.0**	**100.0** [4]	**100.0**
1949	102.5	98.6	106.6	104.1	102.3	102.7
1950	106.7	100.9	105.6	...	104.7	107.2
1951	112.5 [5]	...	...	...	105.8	...
1951: Mar.	110.2	.	107.3	.	103.7	111.1
Apr.	.	.	109.2	.	103.8	111.3
May	.	.	110.8	.	105.5	111.6
June	113.8	.	111.8	.	107.9	111.8
July	.	.	112.9	.	108.1	112.0
Aug.	.	.	113.7	.	107.2	113.0
Sep.	115.3	.	113.3	.	107.6	113.7
Oct.	.	.	113.5	.	107.3	114.4
Nov.	.	.	112.3	.	106.9	116.5
Dec.	113.5	.	...	.	104.5	...
1952: Jan.	.	.	...	.	104.8	...
Feb.	.	.	...	.	105.4	...
Mar.	...	.	...	.	...	...
Persons cov. (thousands	11 983	486	33	1 878	765	253

Date	Europe *(concl.)*			Oceania		
	United Kingdom [6]		Yugoslavia	Australia	Hawaii	New Zealand
	II [7]		IV (A)	IV (A/B)	I	IV (A)
	A.M.I.T.C.	M.I.T.C.	M.I.T.C.	M.I.T.C. [8]	A.M.I.T.C.	M.I.T.C.
	[9]	W.S. [10]	W.S.	W.S.	[11]	W.S.
1937	**100.0**	**100.0**	.	.	.	.
1946	*98.6*	*98.5*	.	88.7	.	.
1947	*105.6*	*105.6*	.	95.9	.	97.0
1948	**100.0**	**100.0**	.	**100.0**	**100.0**	**100.0**
1949	100.7	100.9	**100.0**	102.8	92.2	102.3
1950	101.9	102.3	*95.4*	107.3	...	104.3
1951	102.9	103.6	...	...	...	...
1951: Mar.	.	.	...	110.2	...	105.6
Apr.	.	.	.	110.6	...	105.4
May	.	.	.	110.9	...	...
June	102.9	103.6	...	110.9	...	...
July	.	.	.	111.1	...	...
Aug.	.	.	.	111.1	...	...
Sep.	.	.	...	110.9	...	...
Oct.	103.1	104.0	.	111.0	...	...
Nov.	103.0	104.0	.	111.5	...	...
Dec.	102.5	103.5	...	...	...	...
1952: Jan.	102.4	103.4	.	...	...	...
Feb.	...	...	.	...	...	...
Mar.	...	...	...	...	...	...
Persons cov. (thousands)	21 684	19 109	1 757	2 371	184	440

The Roman numerals and other abbreviations used in this table are explained on p. 648.

[1] 1946 and 1947 : unemployment insurance statistics, base 1941=100. [2] All non-agricultural employment ; prior to 1948 agriculture was included. [3] June-Dec. [4] Mar.-Dec. [5] Excl. Northern Ireland. [6] Annual figures : June. [7] Incl. forestry, fishing and trapping. [8] 1937 to 1948 : estimated total of persons in employment (men aged 14-64 and women 14-59) excl. indoor private domestic service ; since June 1948 (introduction of National Insurance) : estimated total of persons aged 15 and over in employment. [9] 1937 to 1948 : estimated number of employed wage and salary earners subject to the Unemployment Insurance Acts ; since June 1948 (introduction of National Insurance) : estimated total of employed wage and salary earners aged 15 years and over. [10] Covering persons aged 16 and over in employment.

TABLE III. STATISTICS OF EMPLOYMENT IN MANUFACTURING

(a) *Indices of numbers employed*

Date	Africa		America			
	Union of South Africa		Canada [1]	United States	Argentina	Brazil
	Europeans	Total				
	IV (A/B) [2]		IV (A)	IV (A/B)	IV (B)	IV (B) [3]
	W.S.		W.S.	W.	W.	W.S.
1937	81.4	64.1	58.0	68.1	50.0	.
1946	91.9	91.3	.	95.2	93.5	103
1947	96.1	94.8	97.1	100.6	.	102
1948	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100**
1949	101.9	102.9	99.9	91.2	98.8	102
1950	101.1	103.1	100.8	96.4	97.0	98
1951	...	...	107.9	...	...	...
1951 : Mar.	103.6	109.0	105.8	103.7	97.6	98
Apr.	103.9	108.5	107.2	103.1	97.5	96
May	104.2	108.8	107.8	102.2	97.6	97
June	104.0	110.0	109.0	102.7	99.2	97
July	104.1	109.9	110.1	101.3	...	97
Aug.	104.2	110.6	110.2	102.8	...	...
Sep.	104.2	110.8	110.2	102.9	...	...
Oct.	104.3	110.7	110.3	102.2	...	...
Nov.	...	...	108.3	101.5 *	...	...
Dec.	...	...	107.4	101.5 *	...	...
1952 : Jan.	...	...	104.5 *	100.3 *	...	...
Feb.	...	...	...	...	...	...
Mar.	...	...	...	...	...	...
Persons cov. (thousands)	100	332	.	12 717	928	70

Date	America *(concl.)*			Asia			Europe
	Mexico	Puerto Rico	Uruguay	India [4]	Israel	Japan	Belgium [5]
	IV (B)	I	IV (B)	IV (A)	IV (B)	I	II
	W.	W.S.	W.	W.	W.S.	W.S.	W.S.
1937	73.0	.	67.2	**100.0**	.	.	.
1946	101.6	.	95.2	*147.0*	136	.	72.4
1947	100.0	101.1	100.4	96.4	116	103.8 [6]	98.4
1948	**100.0**	**100.0**	**100.0**	**100.0**	**100**	**100.0**	**100.0**
1949	101.8	98.9	...	103.2	123	103.4	93.7
1950	...	113.8	...	...	139	**100.0** [7]	94.3
1951	...	...	...	...	...	...	...
1951 : Mar.	...	...	...	.	139	*112.6*	.
Apr.	...	...	...	.	136	*109.3*	.
May	...	...	...	.	139	*108.4*	.
June	...	...	...	.	138	*110.5*	...
July	...	...	...	.	140	*111.7*	.
Aug.	...	...	...	.	142	*114.0*	.
Sep.	...	...	...	.	...	*113.3*	.
Oct.	...	...	...	.	...	*110.5*	.
Nov.	...	...	...	.	...	...	.
Dec.	...	...	...	.	...	...	...
1952 : Jan.	...	...	...	.	...	...	.
Feb.	...	...	...	.	...	...	.
Mar.	...	...	...	.	...	...	.
Persons cov. (thousands)	127	94	86	2 360	.	4 280 (July 1950)	987

The Roman numerals and other abbreviations used in this table are explained on p. 648.

[1] Monthly figures : first of the month. [2] Incl. building. [3] Large factories only. [4] 1937 and 1946 : former British India ; from 1947 : Indian Union. [5] Annual figures : June. [6] Oct. [7] July 1950=100 (new industrial classification introduced in that month).

TABLE III. STATISTICS OF EMPLOYMENT IN MANUFACTURING *(cont.)*

(a) *Indices of numbers employed* (concl.)

Date	Europe *(cont.)*							
	Denmark	Finland	France	Germany (Fed. Rep.)	Ireland [1]	Italy	Netherlands	
	IV (A)	IV (B)	IV (A)	IV (A)	IV (A)	IV (A)	II	IV (B)
	W.	W.	W.S.	W.S.	W.S. [2]	W.	W.S.	W.
1937	75	.	90.7	.	.	.	66.1	.
1946	91	88.5	88.8	.	90.2	.	74.7	78
1947	95	94.9	96.4	.	102.7	101.7	88.6	91
1948	**100**	**100.0**	**100.0**	**100.0** [3]	**100.0**	**100.0**	**100.0**	**100**
1949	104	100.6	102.2	106.1	106.2	98.8	105.0	105
1950	...	104.1	103.0	113.0	106.9	98.2	...	110
1951	...	108.0	106.4 *r*	121.7 *r*	...	...	...	...
1951: Mar.	.	.	.	119.8	107.1	98.3	.	...
Apr.	.	107.5	105.7	.	.	99.1	.	.
May	.	.	.	.	.	99.1	.	.
June	.	.	.	122.4	107.0	99.1	.	...
July	.	110.7	106.5	.	.	...	.	.
Aug.	.	.	.	.	.	...	.	.
Sep.	.	.	.	123.6	106.6	...	.	...
Oct.	.	108.4	107.6	.	.	...	.	.
Nov.	.	.	.	.	.	...	.	.
Dec.	.	.	.	123.7 *r*	...	...	.	...
1952: Jan.	.	...	107.3	.	.	...	.	.
Feb.	.	.	.	.	.	...	.	.
Mar.	.	.	.	...	...	...	.	...
Persons cov. (thousands)	223	95	3 767	5 058 [3]	122	1 696	946	616

Date	Europe *(concl.)*						Oceania	
	Norway	Saar	Sweden	Switzerland	United Kingdom [4]	Yugoslavia	Australia	New Zealand
	II [5]	III	IV (A) [6]	IV (B)	II [7]	IV (A)	IV (A/B)	IV (A) [8]
	W.S.	W.S.	W.	W.	W.S.	W.S.	W.S.	W.S. [9]
1937	.	.	79.7	73.8	**100.0**	.	62.5	**100.0**
1946	*110.6*	73.4 [10]	98.4	91.0	*94.7*	.	90.7	*130.4*
1947	*124.1*	89.9	99.1	98.4	*102.0*	.	95.8	97.6
1948	**100.0** [11]	**100.0**	**100.0**	**100.0**	**100.0**	.	**100.0**	**100.0**
1949	103.1	108.6	100.6	93.7	102.1	**100.0**	101.1	102.4
1950	105.8	117.6	100.8	92.2	104.7 *r*	*101.3*	106.1	105.3
1951	108.5	...	102.6	101.0	107.5	...	...	...
1951: Mar.	107.3	126.0	102.8	97.4	.	.	108.5	105.9
Apr.	107.2	127.2	103.3	.	.	.	109.0	106.3
May	109.4	127.4	102.9	.	.	.	109.5	...
June	111.0	127.3	.	100.6	107.5	...	109.6	...
July	109.9	127.8	102.5	.	.	.	109.7	...
Aug.	108.8	129.2	102.2	.	.	.	109.7	...
Sep.	108.9	130.0	102.2	102.6	.	.	109.6	...
Oct.	108.5	131.0	103.2	.	108.4	.	109.9	...
Nov.	107.8	131.6	103.3	.	108.4	.	109.9	...
Dec.	106.0	...	102.0	103.3	107.8	...	...	...
1952: Jan.	107.4	...	101.8	.	107.8	.	...	...
Feb.	108.0	...	...	.	...	.	...	...
Mar.	...	...	...	...	...	.	...	...
Persons cov. (thousands)	275	87	653	.	7853	475	830	140

The Roman numerals and other abbreviations used in this table are explained on p. 648.

[1] Annual figures 1946 to 1949: Oct. [2] Incl. working proprietors. [3] Average of last three quarters. [4] Excl. Northern Ireland. Annual figures: June. [5] 1946 and 1947: unemployment insurance statistics incl. mining, base 1941 = 100. [6] Incl. mining. [7] 1937 to 1948: estimated number of employed wage and salary earners subject to the Unemployment Insurance Acts; since June 1948 (introduction of National Insurance): estimated number of employees 15 years and over in employment. [8] Incl. power and water supply. [9] Up to 1946: wage-earners only. [10] June-Dec. [11] Mar.-Dec.

TABLE III. STATISTICS OF EMPLOYMENT IN MANUFACTURING *(concl.)*

(b) *Indices of total hours worked*

Date	America		Asia	Europe	
	United States [1]	Argentina	Israel [2]	Denmark	Finland
	IV (A/B)	IV (B)	IV (B)	IV (B)	IV (B)
	W.	W.	W.S.	W.	W.
1937	65.6	.	.	76	.
1946	95.9	.	135	87	87.1
1947	101.3	.	118	93	93.6
1948	**100.0**	**100.0**	**100**	**100**	**100.0**
1949	89.2	97.7	123	105	98.8
1950	97.4	97.3	138	111	103.0
1951	...	...	...	115	107.6
1951 : Mar.	106.3	101.7	138	120	.
Apr.	105.4	101.4	132	120	110.0
May	103.7	99.8	138	121	.
June	104.2	102.2	137	119	.
July	101.5	...	136	86	105.2
Aug.	103.3	...	136	110	.
Sep.	104.1	...	...	120	.
Oct.	103.2	...	...	118	108.4
Nov.	...	...	...	118	.
Dec.	...	...	...	110	.
1952 : Jan.	...	...	...	105	106.6
Feb.	...	...	...	...	.
Mar.	...	...	...	...	.
Persons cov. (thousands)	12 717	928	.	.	95

Date	Europe *(concl.)*					
	France	Germany (Fed. Rep.)	Ireland [3]	Italy	Norway	Sweden
	IV (A)	IV (A) [4]	IV (A) [4]	IV (A)	IV (A) [4]	IV (A) [4]
	W.	[5]	W.	W.	W.	W.
1937	82.0	.	79.5	.	75.9	.
1946	86.5	.	91.4	.	82.6	98.3
1947	96.6	.	96.8	103.6	93.9	98.0
1948	**100.0**	.	**100.0**	**100.0**	**100.0**	**100.0**
1949	100.5	*92.1* [6]	106.6	100.1	103.2	...
1950	103.0	**100.0**	...	102.2	...	...
1951	107.0	*121.8*	...	...	...	...
1951 : Mar.	.	*120.9*	.	109.4	.	.
Apr.	106.2	*122.4*	.	105.4	.	.
May	.	*120.2*	.	104.3	.	.
June	.	*122.9*	.	106.7	.	.
July	107.1	*120.5*	.	...	.	.
Aug.	.	*123.0*	.	...	.	.
Sep.	.	*119.1*	.	...	.	.
Oct.	108.3	*130.6*	.	...	.	.
Nov.	.	*128.6*	.	...	.	.
Dec.	.	*118.6*	.	...	.	.
1952 : Jan.	107.8	*124.1*	.	...	.	.
Feb.	.	...	.	...	.	.
Mar.	.	...	.	...	.	.
Persons cov. (thousands)	3 767	4 796	122	1 696	198	653

The Roman numerals and other abbreviations used in this table are explained on p. 648.

[1] Calculated by the I.L.O. by multiplying the index of numbers employed by the index of hours worked per worker. [2] Total number of days worked. [3] Week in Oct. of each year. [4] Incl. mining. [5] Incl. all categories of workers. [6] July-Dec.

Consumer Price Indices

Country	Africa						America	
	Algeria	Egypt	Northern Rhodesia	Southern Rhodesia	Tunis	Union of South Africa	Canada	United States
Town or no. of localities	Algiers	Cairo	Whole country	5	Tunis	9	11-64 [1]	34-56 [2]
All groups								
			[3]	[4]		[5]		
1937	.	.	.	.	.	65	65	60
1946	.	102	91	91	.	91	80	81
1947	.	99	97	93	.	95	87	93
1948	.	**100**	**100**	**100**	.	**100**	**100**	**100**
1949	.	99	104	106	.	104	104	99
1950	.	104	108	114	.	108	107	100
1951	.	114	114	121	.	116	119	108
1951 : Mar.	.	112	112	119	.	113	116	107
Apr.	.	112	112	119	.	114	117	107
May	.	113	113	120	.	115	117	108
June	.	113	113	121	.	116	119	108
July	.	113	114	121	.	117	121	108
Aug.	.	114	115	123	.	116	122	108
Sep.	.	114	115	123	.	117	122	109
Oct.	.	115	116	124	.	116	123	109
Nov.	.	116	116	125	.	117	123	110
Dec.	.	117	116	125	.	121	123	110
1952 : Jan.	.	118	118	127	.	123	124	110
Feb.	.	...	118	129	.	123	123	109
Mar.	.	...	...	...	.	...	122	...
Food group								
				[4]	[6]			
1937	.	.	.	.	.	61	53	50
1946	.	105	88	81	46	92	72	76
1947	.	100	94	89	67	97	81	92
1948	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**
1949	123	102	107	107	127	103	104	96
1950	123	111	111	121	132	109	108	97
1951	132	120	119	131	...	116	123	108
1951 : Mar.	126	120	116	129	146	114	120	108
Apr.	126	119	116	130	142	115	122	107
May	125	118	119	132	143	116	120	108
June	126	119	119	133	142	117	123	108
July	129	119	119	134	141	117	128	108
Aug.	131	119	121	131	146	116	129	108
Sep.	134	120	121	131	152	116	128	108
Oct.	142	122	121	131	156	115	128	109
Nov.	146	124	122	132	...	117	128	110
Dec.	148	125	123	133	...	128	128	110
1952 : Jan.	...	125	126	142	...	131	128	111
Feb.	...	...	127	146	...	132	127	108
Mar.	...	...	...	...	...	...	124	...

[1] Food prices collected in 64 towns; other items priced in 11-64 towns. [2] Food prices collected in 56 towns; other items priced in 34-55 towns. [3] Excl. misc. [4] 1946-1950: averages of four months. [5] Incl. direct taxes. [6] Incl. heat, light and soap.

CONSUMER PRICE INDICES *(cont.)*

Country	AMERICA *(cont.)*						
	Argentina	Brazil	British Honduras	British West Indies		Chile	Colombia
Town or no. of localities	Buenos Aires	São Paulo	Belize	Kingston (Jamaica)	St. Vincent	Santiago	Bogotá
All groups							
1937	49	.	.[1]	.	.	22	35
1946	78	77	80	70	87	63	73
1947	88	91	98	83	93	85	86
1948	**100**	**100**	**100**	**100**	**100**	**100**	**100**
1949	131	99	97	104	99	119	107
1950	165	105	96	109	103	137	128
1951	...	...	119	...	111	...	...
1951 : Mar.	187	109	110	117	104	153	140
Apr.	203	111	109	119	105	154	143
May	219	113	113	122	108	158	146
June	226	116	114	124	110	161	145
July	228	...	119	126	113	166	143
Aug.	249	...	120	128	115	175	138
Sep.	244	...	120	...	116	185	138
Oct.	251	...	125	...	116	189	137
Nov.	...	...	125	...	117	...	137
Dec.	...	...	126	...	118	...	...
1952 : Jan.	...	...	126	...	121	...	...
Feb.	...	...	127	...	121	...	...
Mar.	...	...	...	...	...	...	...
Food group							
1937	47	.	.[1]	.	.	23	33
1946	76	74	80	69	87	64	73
1947	88	88	99	80	92	86	87
1948	**100**	**100**	**100**	**100**	**100**	**100**	**100**
1949	130	96	95	106	97	115	104
1950	167	103	89	115	102	134	129
1951	...	...	117	...	110	...	...
1951 : Mar.	186	104	107	122	103	151	142
Apr.	199	105	107	123	103	151	146
May	206	107	111	128	106	152	150
June	221	112	112	131	109	157	149
July	222	113	117	134	114	163	145
Aug.	262	111	118	136	115	178	138
Sep.	247	112	119	...	116	198	138
Oct.	258	112	124	...	117	202	136
Nov.	...	111	125	...	118	...	135
Dec.	...	...	127	...	119	...	...
1952 : Jan.	...	...	127	...	123	...	...
Feb.	...	...	128	...	123	...	...
Mar.	...	...	...	...	...	...	...

[1] 1946-1950 : July.

CONSUMER PRICE INDICES *(cont.)*

Country	America *(cont.)*						
	Costa Rica	Cuba	Dominican Republic	Guatemala	Mexico	Neth. Antilles	Panama
Town or no. of localities	San José	30	Trujillo City	Guatemala	Mexico City	Curaçao	Panama
All groups							
1937	46	.	.	.	27 [1]	.	.
1946	85	.	88	92 [2]	84	.	.
1947	97	.	99	94	94	.	.
1948	**100**	.	**100**	**100**	**100**	.	.
1949	108	.	96	107	105	**100** [3]	.
1950	119	.	96	115	112	*97*	.
1951	127	.	105	120	126	...	.
1951 : Mar.	129	.	99	118	118	*102*	.
Apr.	129	.	102	122	119	...	.
May	130	.	103	124	122	...	.
June	128	.	106	130	125	...	.
July	128	.	107	131	131	*102*	.
Aug.	127	.	108	119	129	*102*	.
Sep.	127	.	109	116	129	*103*	.
Oct.	127	.	109	117	133	*103*	.
Nov.	126	.	108	116	134	*103*	.
Dec.	126	.	107	117	136	...	.
1952 : Jan.	...	.	106	...	138	...	.
Feb.	...	.	106	...	141	...	.
Mar.	...	.	105	...	...	...	.
Food group							
1937	46	37 [4]	.	.	27	.	.
1946	86	78	87	87 [2]	83	.	88
1947	100	92	105	90	95	.	98
1948	**100**	**100**	**100**	**100**	**100**	.	**100**
1949	101	87	87	110	104	**100** [3]	93
1950	110	84	92	121	108	*96*	90
1951	119	...	104	128	124	...	94
1951 : Mar.	122	93	97	125	114	*107*	93
Apr.	124	93	100	129	116	...	93
May	124	...	101	133	119	...	94
June	121	...	111	142	122	...	95
July	120	...	110	143	130	*108*	95
Aug.	118	...	107	124	128	*108*	95
Sep.	118	...	108	122	128	*108*	95
Oct.	118	...	108	125	133	*109*	95
Nov.	117	...	108	122	134	*109*	94
Dec.	118	...	105	124	136	...	94
1952 : Jan.	...	...	104	...	139	...	94
Feb.	...	...	103	...	140	...	92
Mar.	...	...	101	...	...	...	...

[1] Excl. rent and misc. [2] Aug.-Dec. [3] June. [4] July-Dec.

CONSUMER PRICE INDICES *(cont.)*

Country	America *(concl.)*				Asia			
	Peru	Puerto Rico	Uruguay	Venezuela	Burma	Ceylon	Cyprus	Hong Kong
Town or no. of localities	Lima	6	Montevideo	Caracas	Rangoon	Colombo	5	[1]
All groups								
1937	30	.	56	.	28	.	.	.
1946	59	89	85	.	106[2 3]	88	73	.
1947	76	101	98	.	108	97	80[4]	102
1948	**100**	**100**	**100**	.	**100**	**100**	**100**	**100**
1949	115	92	105	.	135	99	96	112
1950	129	90	101	.	114	105	*103*[5]	117
1951	142	...	...	.	112	109	*116*	...
1951 : Mar.	139	97	105	.	102	109	*112*	126
Apr.	140	97	114	.	106	109	*112*	.
May	140	98	115	.	107	109	*112*	.
June	141	99	115	.	117	109	*115*	128
July	141	100	115	.	123	108	*120*	.
Aug.	142	100	117	.	124	107	*119*	.
Sep.	143	101	120	.	121	107	*120*	130
Oct.	144	101	121	.	112	108	*122*	.
Nov.	145	102	124	.	107	109	*122*	.
Dec.	147	...	...	.	107	111	*120*	...
1952 : Jan.	...	...	...	.	106	112	*120*	.
Feb.	...	...	...	.	...	110	*119*	.
Mar.	...	...	...	.	...	...	*120*	...
Food group								
1937	27	.	51	48[6]	25	.	.	.
1946	54	85	83	72	151[2]	82	77	.
1947	74	101	102	83	115	91	83[4]	101
1948	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**
1949	116	89	100	98	142	104	94	119
1950	134	88	91	97	120	112	*106*[5]	127
1951	150	...	...	...	120	112	*122*	...
1951 : Mar.	148	97	95	101	105	114	*114*	130
Apr.	147	98	102	102	109	113	*112*	.
May	147	99	104	104	111	112	*112*	.
June	148	99	105	108	126	112	*119*	136
July	149	100	105	105	137	110	*128*	.
Aug.	150	100	109	106	139	110	*126*	.
Sep.	152	101	115	106	135	111	*129*	140
Oct.	153	101	115	102	121	111	*134*	.
Nov.	154	102	116	...	112	111	*133*	.
Dec.	157	...	...	...	113	114	*127*	...
1952 : Jan.	...	...	...	...	...	114	*128*	.
Feb.	...	...	...	...	...	112	*126*	.
Mar.	...	...	...	...	...	...	*129*	...

[1] Clerical and skilled workers. [2] New series, spliced by I.L.O. to old series. [3] Sep.-Dec.
[4] Jan.-Sep. [5] New series; 12 Jan. 1950 = 100. [6] Incl. soap and coal.

CONSUMER PRICE INDICES *(cont.)*

Country	Asia *(cont.)*							
	India			Indonesia	Iran	Israel	Japan	Lebanon
Town or no. of localities	Ahmed-abad	Bombay	Delhi	Djakarta[1]	7	2	28	Beirut [2]
All groups								
						[3]		[3]
1937	31	35	.	.	13	.	.	.
1946	86	85	81	.	90	79	27 [4]	112
1947	90	92	92	.	91	80	57	102
1948	**100**	**100**	**100**	.	**100**	**100**	**100**	**100**
1949	102	101	100	.	109	103	138	94
1950	106	103	100	.	89	95	128	87
1951	107	109	107	.	93	...	...	94
1951 : Mar.	110	110	105	.	93	100	146	95
Apr.	111	111	105	.	94	101	149	94
May	114	111	106	.	93	102	154	94
June	112	111	109	.	93	101	148	93
July	111	110	110	.	92	102	149	92
Aug.	107	108	111	.	93	104	159	91
Sep.	104	107	109	.	93	106	158	93
Oct.	105	110	109	.	94	109	155	95
Nov.	106	110	111	.	96	...	156	95
Dec.	104	109	109	.	96	...	...	96
1952 : Jan.	101	109	108	.	98	...	...	...
Feb.	...	...	...	.	98	...	...	...
Mar.	...	...	...	.	...	...	...	...
Food group								
1937	28	33	.	.	13	.	.	.
1946	90	91	86	.	89	77	32 [4]	106
1947	96	99	99	179	90	77	64	96
1948	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**
1949	105	105	101	97	111	97	134	91
1950	112	109	101	113	85	86	120	81
1951	111	115	112	189	88	...	...	91
1951 : Mar.	119	118	110	194	89	87	139	92
Apr.	114	116	110	164	90	88	140	91
May	119	116	110	163	88	89	145	91
June	115	117	114	173	88	88	136	88
July	115	116	115	192	86	89	136	86
Aug.	110	113	114	189	87	90	150	86
Sep.	105	111	113	191	87	93	148	89
Oct.	107	116	114	212	89	97	140	93
Nov.	109	116	117	216	91	...	139	95
Dec.	106	115	111	224	93	...	...	96
1952 : Jan.	101	113	107	...	95	...	...	...
Feb.	...	...	...	...	95	...	...	...
Mar.	...	...	...	...	...	...	...	...

[1] Index of the free-market retail prices of 19 foodstuffs, based on the consumption in 1932 of an Indonesian family with a monthly income of fl. 25-50. [2] Salaried employees. [3] Incl. direct taxes. [4] Aug.-Dec.

CONSUMER PRICE INDICES *(cont.)*

Country	Asia *(concl.)*						
	Malaya		Pakistan		Philippines	Thailand [3]	Viet-Nam
Town or no. of localities	Kuala Lumpur 1	Kuala Lumpur 2	Karachi	Narayanganj	Manila	Bangkok	Saigon
All groups							
1937	.	.	.	.	24	.	.
1946	.	.	.	.	144	86	46 [4]
1947	106	.	.	.	106	100	74
1948	**100**	.	.	.	**100**	**100**	**100**
1949	94	**100** [5]	**100** [6]	**100** [6]	94	96	**100** [7]
1950	101	*108*	*95*	*98*	93	99	*102*
1951	133	*136*	*99*	*102*	99	110	*116*
1951 : Mar.	130	*136*	*98*	*99*	97	114	*108*
Apr.	131	*134*	*98*	*100*	99	117	*110*
May	132	*135*	*97*	*100*	100	115	*113*
June	133	*136*	*99*	*104*	101	112	*116*
July	134	*137*	*99*	*103*	101	110 [r]	*115*
Aug.	136	*138*	*99*	*102*	100	109	*118*
Sep.	137	*138*	*99*	*102*	100	109	*120*
Oct.	138	*139*	*101*	*107*	98	108	*120*
Nov.	139	*140*	*101*	*106*	96	107 [r]	*123*
Dec.	139	*142*	*101*	*107* [r]	96	106	*127*
1952 : Jan.	...	...	*101*	*111*	...	...	*130*
Feb.	...	...	...	...	...	...	...
Mar.	...	...	...	...	...	...	...
Food group							
1937	.	.	.	.	23	.	.
1946	.	.	.	.	168	80	44 [4]
1947	.	.	.	.	108	99	74
1948	.	.	.	.	**100**	**100**	**100**
1949	.	.	**100** [6]	**100** [6]	93	95	**100** [7]
1950	.	.	*93*	*97*	86	97	*96*
1951	.	.	*99*	*101*	94	106	*107*
1951 : Mar.	.	.	*99*	*98*	90	111	*95*
Apr.	.	.	*98*	*99*	94	115	*96*
May	.	.	*97*	*99*	95	112	*98*
June	.	.	*100*	*104*	96	108	*101*
July	.	.	*100*	*102*	96	104	*103*
Aug.	.	.	*100*	*101*	96	104	*106*
Sep.	.	.	*101*	*99*	96	103	*108*
Oct.	.	.	*103*	*105*	94	101	*110*
Nov.	.	.	*103*	*104*	91	100	*113*
Dec.	.	.	*102*	*105*	90	99	*120*
1952 : Jan.	.	.	*102*	*110*	...	...	125
Feb.	.	.	...	...	...	...	...
Mar.	.	.	...	...	...	...	...

[1] Chinese labourers. [2] Malay labourers. [3] Clerical workers and civil servants. [4] Mar.-Dec. [5] Jan. [6] Apr. 1948-Mar. 1949. [7] New index.

CONSUMER PRICE INDICES *(cont.)*

Country	Europe					
	Austria	Belgium	Denmark	Finland	France	Germany (Federal Republic)
Town or no. of localities	Vienna	62	200	33 [1]	Paris	
			All groups			
	[2]	[2]	[3]	[3]		
1937	.	26	59	12	.	62
1946	.	.	95	57	.	.
1947	.	87	98	74	.	.
1948	100 [4]	100	100	100	.	100 [4]
1949	123	97	101	102	100	99
1950	140	96	107	116	*111*	93
1951	179	105	...	135	*130*	101
1951 : Mar.	160	104	.	132	*124*	99
Apr.	163	105	117	133	*126*	101
May	166	105	.	134	*129*	102
June	169	106	.	135	*129*	103
July	185	106	120	136	*130*	103
Aug.	192	106	.	138	*131*	102
Sep.	195	106	.	140	*133*	102
Oct.	201	107	121	137	*136*	104
Nov.	200	107	.	137	*140*	104
Dec.	203	107	.	136	*143*	105
1952 : Jan.	203	108	116	141	*146*	105
Feb.	202	108	.	141	*149*	106
Mar.	...	107	.	...	...	...
			Food group			
1937	.	.	58	11	.	64
1946	.	.	94	52	.	.
1947	.	79	98	76	.	.
1948	100 [4]	100	100	100	.	100 [4]
1949	136	95	101	103	100	106
1950	146	92	118	118	*111*	100
1951	179	99	...	126	*128*	112
1951 : Mar.	154	98	.	125	*123*	108
Apr.	154	98	129	125	*125*	109
May	157	97	.	125	*129*	112
June	162	98	.	125	*127*	115
July	198	98	130	126	*127*	115
Aug.	199	98	.	127	*127*	113
Sep.	199	99	.	126	*129*	112
Oct.	201	101	131	126	*132*	115
Nov.	201	102	.	131	*136*	117
Dec.	208	102	.	130	*139*	119
1952 : Jan.	207	103	129	135	*142*	120
Feb.	206	103	.	134	*145*	121
Mar.	...	102	.	...	...	...

[1] Prior to 1950 : 32 towns. [2] Excl. rent. [3] Incl. direct taxes. [4] July-Dec.

CONSUMER PRICE INDICES *(cont.)*

Country	Europe *(cont.)*					
	Greece	Iceland	Ireland	Italy	Luxembourg	Netherlands
Town or no. of localities	Athens	Reykjavik	120	62 [1]	9	9 [2]
			All groups			
1937	0.4	.	54	.	33 [3]	49 [4]
1946	59	91	92	58	90	93 [5]
1947	71	98	98 [6]	94	94	97
1948	**100**	**100**	**100**	**100**	**100** [7]	**100**
1949	115	102	101	101	106	**100** [8]
1950	124	163 [9]	102	100	110	*109*
1951	139	200	110	110	119	...
1951 : Mar.	142	188	.	107	117	*117*
Apr.	139	192	.	110	120	*122*
May	143	194	110	110	120	*122*
June	139	200	.	111	120	*121*
July	137	202	.	111	121	*122*
Aug.	137	205	112	111	121	*121*
Sep.	137	211	.	111	121	*121*
Oct.	142	214	.	111	120	*121*
Nov.	143	215	114	112	120	*120*
Dec.	144	215	.	112	120	...
1952 : Jan.	...	218	.	111	120	...
Feb.	...	221	115	...	121	...
Mar.	...	...	.	...	121	...
			Food group			
1937	0.3	.	53	.	35	43
1946	54	100	90	59	88	85 [5]
1947	66	104	97 [6]	96	94	92
1948	**100**	**100**	**100**	**100**	**100** [7]	**100**
1949	116	101	100	100	111	**100** [8]
1950	122	152 [9]	100	97	119	*111*
1951	130	193	107	103	123	...
1951 : Mar.	135	181	.	100	121	*113*
Apr.	130	184	.	103	123	*122*
May	136	186	107	104	121	*124*
June	130	192	.	105	122	*123*
July	127	194	.	105	125	*127*
Aug.	127	197	109	104	126	*124*
Sep.	127	207	.	104	125	*124*
Oct.	131	210	.	104	124	*125*
Nov.	131	207	110	105	124	*123*
Dec.	132	208	.	104	124	...
1952 : Jan.	...	208	.	104	...	...
Feb.	...	208	111	...	...	...
Mar.	...	...	.	...	...	...

[1] Towns of over 50,000 inhabitants. [2] Prior to 1949 : 6 towns. [3] Excl. rent. [4] Incl. direct taxes. [5] Average calculated for a period of less than one year. [6] From Aug. 1947 : interim index, excl. misc., spliced by I.L.O. to old series. [7] New series, spliced by I.L.O. to old series. [8] New series. [9] Mar.-Dec. : new series spliced by I.L.O. to old series.

CONSUMER PRICE INDICES *(cont.)*

Country	Europe *(cont.)*							
	Norway	Poland	Portugal	Saar	Spain	Sweden		Switzerland
Town or no. of localities	53 [1]	Warsaw	Lisbon	Saarbrücken	50	95		34
All groups								
						[2]	[3]	[4]
1937	61	.	.	.	.	64	60	61
1946	100	74	.	.	80	93	93	93 [5]
1947	101	96	.	.	94	96	94	97
1948	**100**	**100**	.	**100**	**100**	**100**	**100**	**100**
1949	100	104	.	109	105	102	102	99
1950	105	113	.	112	117	103	103	98 [4]
1951	122	...	.	137	128	118	120	102
1951 : Mar.	115	115	.	127	129	115	117	100
Apr.	120	114	.	131	128	.	119	101
May	122	...	.	132	128	.	120	102
June	124	...	.	134	128	120	121	102
July	126	...	.	134	127	.	122	103
Aug.	126	...	.	136	128	.	122	103
Sep.	126	...	.	141	128	123	124	104
Oct.	126	...	.	148	128	.	125	104
Nov.	126	...	.	153	128	.	126	105
Dec.	127	...	.	155	128	125	126	105
1952 : Jan.	...	...	.	158	...	.	126	105
Feb.	...	...	.	160	...	.	127	105
Mar.	...	...	.	160	...	...	...	105
Food group								
			[6]					
1937	63	.	.	.	.	60	60	57
1946	104	81	101	.	82	88	90	91 [5]
1947	103	98	103	.	97	93	93	97
1948	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**
1949	99	106	104	102	104	101	101	99
1950	108	116	104	105	116	103	103	100
1951	127	...	103	123	127	118	121	103
1951 : Mar.	120	116	105	114	130	117	117	102
Apr.	126	114	104	117	128	.	119	102
May	128	...	99	118	128	.	121	102
June	129	...	101	120	127	119	120	103
July	131	...	100	121	127	.	120	103
Aug.	131	...	103	120	127	.	122	104
Sep.	130	...	104	125	127	124	125	105
Oct.	130	...	104	133	127	.	126	105
Nov.	131	...	104	138	127	.	127	105
Dec.	133	...	103	141	126	127	128	105
1952 : Jan.	...	...	101	145	...	.	129	105
Feb.	...	...	101	146	...	.	130	104
Mar.	...	...	101	146	...	...	...	104

[1] Prior to 1950 : 31 towns. [2] Weights based on family budget enquiries. [3] Weights based on estimated aggregate consumption. [4] Prior to Mar. 1950 : excl. misc. [5] New series, spliced by I.L.O. to old series. [6] Incl. heat and light.

CONSUMER PRICE INDICES *(concl.)*

Country	Europe *(concl.)*		Oceania			
	Turkey	United Kingdom	Australia	Fiji	Hawaii	New Zealand
Town or no. of localities	Istanbul	200 [1]	30	Suva	Honolulu	21 [2]
			All groups			
1937	.	*76*	67	.	.	70
1946	99	**100**	88	81	84	90
1947	100	94 [3]	92	92	95	93
1948	**100**	**100**	**100**	**100**	**100**	**100**
1949	110	103	109	101	97	102 [4]
1950	104	106	120	103	95	107
1951	103	115	146	112	101	119
1951 : Mar.	103	110	.	.	100	.
Apr.	102	112	}	107	.	}
May	101	115	142	.	.	118
June	101	116	}	.	100	}
July	102	117	}	112	.	}
Aug.	101	118	150	.	.	122
Sep.	102	119	}	.	101	}
Oct.	102	119	}	121	.	}
Nov.	104	119	158	.	.	125
Dec.	106	120	}	.	102	}
1952 : Jan.	...	122	.	125	.	.
Feb.	...	123	.	.	.	.
Mar.	...	...	.	.	102	.
			Food group			
1937	.	*82*	68	.	.	69
1946	99	**100**	83	78	78	83
1947	97	94 [3]	88	92	93	89
1948	**100**	**100**	**100**	**100**	**100**	**100**
1949	112	106	111	104	96	103 [4]
1950	106	114	125	107	91	113
1951	102	126	155	114	99	130
1951 : Mar.	103	119	145	.	100	121
Apr.	101	121	150	108	99	125
May	100	125	152	.	97	127
June	99	126	158	.	98	129
July	100	130	}	112	99	131
Aug.	99	130	170	.	99	133
Sep.	101	131	}	.	99	134
Oct.	102	132	}	126	100	135
Nov.	104	133	184	.	101	139
Dec.	105	134	}	.	102	143
1952 : Jan.	...	139	.	132	102	140
Feb.	...	...	.	.	102	138
Mar.	...	...	.	...	101	...

[1] Since Aug. 1947 : food prices collected in 200 towns, other items priced in 12-150 towns' Prior to 1947 : food prices collected in 509 towns, other items priced in 24-509 towns. [2] Prior to 1949 : 25 towns. [3] July-Dec. interim index. [4] New series, spliced by I.L.O. to old series.

Wages

STATISTICS OF THE GENERAL LEVEL OF WAGES

Rates or earnings per hour, day, week or month

Date	Africa	America									
	Egypt	Canada		Argentina [1]	Colombia [2]			Dominican Republic [3]		
	Mi., man., constr., trp., serv.	Mi., man., constr. trp., serv.	Mi., man., cstr., com., trp., ser.	Mi., man., serv. [4]	Mi., man., constr., transp., serv.			Man., transp., serv.		
	Week	Hour	Week	Month	Day			Day		
	M. W.	M. W.		M. W.	M.	W.	M. W.	M.	W.	M. W.
	Earnings [4]	Rates [5]	Earnings [6]	Earnings	Earnings			Earnings		
	Piastres	Index	$	Pesos	Pesos	Pesos	Pesos	Pesos	Pesos	Pesos
1937	.	49	.	111.2	.	.	.	.	.	.
1946	124.0	79	.	186.8	2.86	1.56	2.56	.	.	.
1947	133.0	89	36.19	264.2	3.41	1.91	3.08	1.95	1.12	1.79
1948	146.5	**100**	40.06	360.5	...	...	...	2.16	1.18	1.96
1949	145.0	104	42.96	490.5	...	...	...	2.13	1.23	1.95
1950	160.0	...	44.84	594.3	...	...	...	2.19	1.38	2.03
1951	...	...	49.61	...	...	...	...	...	...	...
1950 : Dec.	...	.	45.27	1115.0	...	...	...	2.24	1.40	2.07
1951 : Mar.	.	.	48.43	625.8	...	...	...	.	.	.
June	...	.	50.17	733.2	...	...	...	...	...	...
Sep.	.	.	51.59	...	...	...	...	.	.	.
Dec.	...	.	50.42	...	...	...	...	...	...	...
Persons cov. (thousands)	123 (1950)	.	2 083 (1950)	956 (1949)	.	.	13 (1947)	3.8[r] (May 1950)	0.9 (May 1950)	4.6 (May 1950)

Date	America *(concl.)*					Asia				Europe
	Mexico		Peru			Ceylon	Japan	Philippines [7]		Belgium
	Mi., man., constr. transp.		Agr., mi., man., constr., transp., com., serv.			.	Mi., man., com., transp.,etc.	Man., constr., transp.		Man., constr., transp. [8]
	Hour	Week	Day			Hour	Month	Day		Hour
	M. W.		M.	W.	M. W.	M. W.	M. W.	M. W		M. W.
	Earnings					Rates	Earnings [6]	Rates		Earnings
	Pesos	Pesos	Soles	Soles	Soles	Index	Yen	Pesos	Pesos	Index
1937	.	.	.	.	.	.	.	.	.	27
1946	1.17	53.44	5.03	4.71	5.01	89	.	6.73	4.53	87 [9]
1947	1.28	58.90 [9]	6.18	5.14	6.12	94	1 950	7.54	4.66	91
1948	...	...	...	...	8.62	**100**	5 137	7.47	4.69	**100**
1949	...	...	...	...	11.89	102	8 019	7.61	4.90	105
1950	...	...	...	...	...	118	9 689	7.60	4.29	110
1951	...	...	...	...	...	...	...	...	...	122
1950 : Dec.	.	.	.	.	.	140	13 413	7.58	4.13	114
1951 : Mar.	.	.	.	.	.	146	10 346	7.23	4.50	116
June	.	.	.	.	.	148	12 433	...	...	121
Sep.	.	.	.	.	.	...	11 657	...	...	123
Dec.	.	.	.	.	.	...	...	...	...	127
Persons cov. (thousands)	68 (1939)		.	.	104 (1949)	.	.	.	.	.

[1] Series calculated by I.L.O. by dividing total wages paid per month by average employment in the same month. [2] Bogotá. [3] Ciudad Trujillo ; annual figures : averages May and Nov. [4] Annual figures : averages of Jan. and July. [5] Oct. of each year. [6] Incl. salaried employees. [7] Manila. [8] Dec.

STATISTICS OF THE GENERAL LEVEL OF WAGES *(cont.)*

Rates or earnings per hour, day, week or month

Date	Europe *(cont.)*											
	Denmark				France			Ireland				
	Man., constr., com., transp., etc.				Man., constr.[6], com., transp.[6] [7]			Mi., man., constr., transp., serv.				
	Hour				Hour			Hour				
	M. sk.	M. unsk.	W.	M. W.	M.	W.	M. W.	M.	W.	M. W.[2]		
	Earnings [1]				Rates			Earnings [3]				
	Øre	Øre	Øre	Øre	Fr.	Fr.	Fr.	s. d.	s. d.	s. d.		
1937	158	133	88	135	.	.	.	1 2.0	0 7.9	0 11.9		
1946	286	247	174	249	32.5	25.9	30.6	1 8.2	1 0.2	1 5.3		
1947	304	259	186	263	45.1	38.3	43.2	2 0.1	1 2.2	1 8.6		
1948	330	278	202	284	68.2	59.1	65.5	2 2.6	1 3.4	1 10.7		
1949	345	290	212	297	76.2	66.3	73.5	2 3.7	1 4.2	1 11.6		
1950	361	304	224	312	84.1	73.1	81.1	...	...	...		
1951	...	...	...	...	107.4	94.2	103.7	...	...	...		
1950: Dec.	374	313	229	321	92.0	81.0	88.9	.	.	.		
1951: Mar.	376	317	233	325	97.2	85.5	93.9	.	.	.		
June	392	334	244	340	105.8	92.9	102.2	.	.	.		
Sep.	400	340	248	346	119.1	104.5	115.0	.	.	.		
Dec.	...	...	...	...	123.0	106.7	118.4	.	.	.		
Persons cov. (thousands)	79	115	60	255 [7]	3 320	1 260	4 580	.	.	186 (1949)		
	(30 June 1950)				(1 Jan. 1951)							

Date	Europe *(cont.)*											
	Ireland *(cont.)*			Luxembourg	Netherlands [4]	Saar		Sweden				
	Mi., man., constr. transp., serv.			Mi., man., constr., etc.	Mi., man., constr., trp., serv.	Man., constr., serv.[6]		Mi., man., constr., com., transp.				
	Week			Hour	Day	Hour	Week	Hour				
	M.	W.	M. W.[2]	M. W.	M. W.	M. W.		M.	W.	M. W.[5]		
	Earnings [3]			Earnings	Earnings	Earnings		Earnings				
	s. d.	s. d.	s. d.	Fr.	Fl.	Fr.	Fr.	Kr.	Kr.	Kr.		
1937	51 9	28 11	43 7	.	3.52	.	.	1.29	0.77	1.15		
1946	76 6	44 3	64 5	21.03	5.81	.	.	2.15	1.38	1.98		
1947	91 1	51 5	76 5	22.78	6.52	.	.	2.45	1.62	2.27		
1948	100 4	55 11	84 5	25.40	6.78	.	.	2.67	1.79	2.47		
1949	105 5	59 0	88 4	26.74	6.93	83.71	3 904	2.75	1.87	2.56		
1950	...	...	...	...	...	90.79	4 276	...	...	...		
1951	...	...	...	...	...	...	...	...	...	...		
1950: Dec.	.	.	.	.	.	100.13	4 666	.	.	.		
1951: Mar.	.	.	.	.	.	...	...	.	.	.		
June	.	.	.	.	.	...	...	.	.	.		
Sep.	.	.	.	.	.	...	...	.	.	.		
Dec.	.	.	.	.	.	...	...	.	.	.		
Persons cov. (thousands)	.	.	186 (1949)	.	1 954 (1949)	116 (1950)		490	84	607 (1949)		

[1] Excl. overtime. Monthly figures : averages for quarter ending in month indicated. [2] Incl. juveniles. [3] One week in Oct. of each year. [4] Insurance statistics (accidents) incl. salaried employees. [5] Incl. foremen and juveniles.

STATISTICS OF THE GENERAL LEVEL OF WAGES *(cont.)*

Rates or earnings per hour, day, week or month

Date	Europe *(cont.)*										
	Sweden *(concl.)*			Switzerland [1]							
	Mi.[2], man., com., transp.			For., mi., man., constr., com., transp.							
	Week			Hour				Week			
	M.	W.	M. W. [3]	M. skil., semi-skil.	M. unskil.	W.	M. W.	M. skil., semi-skil.	M. unskil.	W.	M. W.
	Earnings			Earnings [3]							
	Kr.	Kr.	Kr.	Fr.	Fr.	Fr.	Index	Fr.	Fr.	Fr.	Index
1937	51.48	35.40	54.75	1.36	1.07	0.70	50	67.05	53.60	33.75	50
1946	100.92	63.30	92.56	2.23	1.88	1.34	87	110.75	95.20	64.10	87
1947	...	...	...	2.42	2.04	1.49	94	119.80	103.00	70.80	95
1948	...	...	...	2.56	2.15	1.58	**100**	126.55	108.25	75.00	**100**
1949	...	...	...	2.60	2.19	1.62	102	127.65	109.45	76.95	101
1950	...	...	...	2.62	2.20	1.63	102	128.60	109.75	77.20	102
1951	...	...	...	...	...	...	...	...	...	...	...
1950 : Dec.	.	.	.	2.62	2.20	1.62	102	129.20	110.70	76.60	102
1951 : Mar.	.	.	.	.	.	.	.	.	.	.	.
June	.	.	.	...	...	...	...	...	...	...	...
Sep.	.	.	.	.	.	.	.	.	.	.	.
Dec.	.	.	.	...	...	...	...	...	...	...	...
Persons cov. (thousands)	469	91	592	45	37	13	95	45	37	13	95
	(1946)			(1950)							

Date	Europe *(concl.)*								Oceania		
	United Kingdom [4]								Australia		
	Agr., mi., man., constr., com., transp., etc.	Mi.[5] man., constr., transp.[6], serv.[6]							Mi., man., constr., com., transp.[6], serv.		
	Hour	Hour			Week				Hour		
	M. W.	M.	W.	M. W. [7]	M.	W.	M. W. [7]		M.	W.	
	Rates [8]	Earnings [9]							Rates [10]		
	Index	s. d.	s. d.	s. d.	s. d.	s. d	s. d.		s. d.	s. d,	
1937	*58*	.	.	.	.	.	.		2 0	1 1	
1946	**100**	2 6.4	1 6.4	2 2.2	120 9	65 3	101 0		2 9¾	1 8¾	
1947	96 [11]	2 9.0	1 8.1	2 4.7	128 1	69 7	108 2		3 1	1 11	
1948	**100**	2 11.4 [12]	1 9.5 [12]	2 7.1 [12]	137 11 [12]	74 6 [12]	117 4 [12]		3 8¾	2 4¼	
1949	102	3 0.6	1 10.7	2 8.2	142 8	78 9	121 9		4 0¾	2 7½	
1950	106	3 1.9	1 11.6	2 9.3	150 5	82 7	128 0		4 6¼	3 0½	
1951	...	...	...	...	...	...	...		...	...	
1950 : Dec.	106	.	.	.	.	.	.		5 0	3 6¼	
1951 : Mar.	109	3 4.1	2 1.0 [7]	2 11.3	160 2	87 4	136 2		5 2¼	3 7¼	
June	111	.	.	.	.	.	.		5 4½	3 9¼	
Sep.	...	...	...	...	...	...	...		5 8¼	3 11	
Dec.	...	.	.	.	.	.	.		...	...	
Persons cov. (thousands)	.	.	.	6 500 (Oct. 1950)	.	.	6 500 (Oct. 1950)		.	.	

[1] Earnings of wage earners involved in accidents; adults. [2] Incl. foremen and juveniles. [3] Monthly figures: averages for half-year ending in month indicated. [4] Manual workers. [5] Excl. coal mines. [6] Excl. railways. [7] Incl. juveniles. [8] Annual figures: 31 Dec. of each year. [9] Annual figures: Oct. of each year. Monthly figures: Apr. and Oct. of each year. [10] Adults. [11] Scope of series enlarged. [12] Owing to changes in industrial classification, Oct. 1948 and later figures are not strictly comparable with those for earlier dates.

STATISTICS OF THE GENERAL LEVEL OF WAGES *(concl.)*

Rates or earnings per hour, day, week or month

Date	Oceania *(concl.)*											
	Australia *(concl.)*					Hawaii	New Zealand					
	Mi., man., constr., com., transp.*, serv.			Agr., mi., man., constr., com., transp., serv.		Mi., man., constr., com., transp., serv.	Mi.*, man., constr.*, com., transp.*, serv.			Mi., man., constr., transp., serv.		
	Week			Week		Week	Hour			Week [1] [2]		
	M.	W.		M.[3]		M. W.	M.	W.		M.	M.W.	
	Rates [2]			Earnings [4]		Earnings [4]	Rates					
	s.	d.	s. d.	£A.		$	s.	d.	s. d.	s.	d.	s. d.
1937	89	10	47 10	.		.	2	4.37	1 3.17	.		88 0¼
1946	122	8	76 5	6.51		45.20	3	2.99	1 11.66	.		120 8½
1947	133	2	83 5	7.10		50.66	3	4.79	2 0.98	.		125 3
1948	149	0	94 9	8.12		51.64	3	7.07	2 3.30	143	6	132 8¼
1949	162	6	105 5	8.94		...	3	9.66	2 5.50	151	10	140 9¾
1950	180	7	121 4	10.13		...	4	0.57	...	161	6	150 1
1951	...		...	...		...	...		...	184	4	...
1950: Dec.	199	11	140 5	11.16		...	.		.	164	9	.
1951: Mar.	207	4	144 1	11.33		...	.		.	183	11	.
June	214	11	151 2	...		...	.		.	184	2	.
Sep.	...		...	...		...	.		.	184	3	.
Dec.	...		...	...		...	.		.	185	1	.
Persons cov. (thousands)	.		.	.		.	228 (1945)		41	.		.

[1] New series, see introductory notes p. 642. [2] Adults. [3] Incl. salaried employees and 45 per cent. of females. [4] Monthly figures: averages for quarter ending in month indicated.

Hours of Work

STATISTICS OF THE GENERAL LEVEL OF HOURS OF WORK

Date	Africa	America			Asia		Europe
	Egypt [1]	United States	Argentina [2]	Mexico [3]	Japan		France
	Mi., man., constr., transp., serv.	Mi., man., constr., com., transp., serv.	Mi., man., serv. [4]	Mi., man., constr., transp.	Mi., man., constr., com., transp., serv., etc. [4]	Mi., man., com., transp., etc. [5]	Mi., man., constr., com., transp., serv.
1937	.	.	.	.	.	.	40.7
1946	51.0	43.0	103	45.60	.	.	44.0
1947	51.5	42.3	102	45.96	50.6 [6]	.	45.0
1948	51.5	41.6	**100**	...	50.4	188.5 [7]	45.0
1949	51.5	40.9	99	...	49.0	.	44.5
1950	50.5	40.7	100	...	49.9	189.3	45.0
1951	...	...	...	...	...	...	45.2
1950: Sep.	.	37.1	107	.	50.3	193.6	45.3
Dec.	...	41.2	96	.	50.6	197.8	45.0
1951: Mar.	.	...	104	.	49.5	188.7	45.2
June	...	...	103	.	51.6	197.1	45.2
Sep.	.	...	...	.	49.0	194.0	45.3
Dec.	...	...	...	.	...	...	45.1
Persons cov. (thousands)	123 (1950)	50 033 (1950)	956 (1949)	68 (1939)	18 050 (1950)	4 479 (Dec. 1950)	7 490 (1950)

Date	Europe *(concl.)*			Oceania			
	Ireland [8]	Sweden	United Kingdom [9]	Australia [10]		New Zealand [11]	
	Mi., man., constr., transp., serv.	Mi., man., constr., com., transp., serv.	Mi. [12], man., constr., transp. [13], serv. [9]	Mi., man., constr., com., transp., serv.		Mi., man., constr., com., transp., etc.	
				M.	W.	M.	W.
1937	43.9	46.9 [14]	.	45.08 [7]	44.59	41.10	41.39
1946	44.7	47.0 [15]	46.2	43.59	44.03	40.50	40.11
1947	44.6	...	45.2	43.57	44.03	40.06	40.00
1948	44.6	...	45.3 [16]	39.96	40.00	39.98	40.00
1949	44.9	...	45.4	39.96	40.00	39.90	40.00
1950	...	...	46.1	39.96	40.00	39.90	40.00
1951	...	...	...	39.96	40.00	...	...
1950: Sep.	.	.	46.1	39.96	40.00	.	.
Dec.	.	.	.	39.96	40.00	.	.
1951: Mar.	.	.	46.3	39.96	40.00	.	.
June	.	.	.	39.96	40.00	.	.
Sep.	.	.	...	39.95	40.00	.	.
Dec.	.	.	.	39.95	40.00	.	.
Persons cov. (thousands)	186 (1949)	.	6 500 (Oct. 1950)	.	.	.	.

[1] Annual figures: average of Jan. and July. [2] Per month. Index calculated by I.L.O. from the indices of total hours worked and average employment per month. [3] Oct. of each year. [4] Incl. proprietors and family workers. [5] Per month, incl. salaried employees. [6] Dec. [7] Oct. [8] One week in Oct. of each year. [9] Manual workers. Annual figures: Oct. of each year. Monthly figures: Apr. and Oct. of each year. [10] Normal hours. Adults; June of each year. [11] Normal hours. [12] Excl. coal mines. [13] Excl. railways. [14] July [15] May. [16] Owing to changes in industrial classification, Oct. 1948 and later figures are not strictly comparable with those for earlier dates.

BIBLIOGRAPHY

I.L.O. Publications

Documents of the International Labour Conference.

Thirty-fifth Session, Geneva, 1952. Report III (Part II): *Summary of Reports on Unratified Conventions and on Recommendations (Article 19 of the Constitution).* Geneva, 1952. 121 pp. $1.25 ; 7s. 6d.

This third series of reports submitted by Governments under the 1946 amendments of the Constitution of the I.L.O. relates to the Unemployment Provision Convention (1934), to the Employment Service Convention (1948), and to six Recommendations concerning questions of unemployment and the organisation of employment.

— Report VI (a) (2): *Co-operation between Employers and Workers at the Level of the Undertaking.* Geneva, 1952. 82 pp. 50 cents ; 3s.

Contains the comments of the Governments on the proposed text of a Recommendation, their replies to a questionnaire prepared by the Office on guiding principles for giving effect to co-operation within the undertakings, and revised drafts for consideration by this year's Conference.

— Report VII: *Revision of the Maternity Protection Convention 1919 (No. 3).* Geneva, 1952. 81 pp. 50 cents ; 3s.

After a review of the effect given to this Convention in the various countries, the report reproduces and analyses the observations of the Governments on the list of points for revision prepared by the Office, and presents a revised text of the Convention and a proposed text for a supplementary Recommendation.

Documents of Regional Conferences

Fifth Conference of American States Members of the I.L.O., Rio de Janeiro, April 1952. *Report of the Director-General.* Geneva, 1952. 152 pp. 75 cents ; 4s. 6d.

The first two chapters contain a survey of economic development in Latin America and of the effect of I.L.O. activities in relation to manpower problems, conditions of work, indigenous workers, social security and co-operative movements. Subsequent chapters are devoted to a study of social policy in agriculture, an examination of the present position of the labour movement in Latin America, and to a review of relations between the I.L.O. and the American States (including technical assistance projects).

Documents of the Industrial Committees.

Iron and Steel Committee, Fourth Session, Geneva, 1952. Report I: *General Report.* Geneva, 1952. 106 pp. 50 cents ; 3s.

— Report II: *Vocational Training and Promotion in the Iron and Steel Industry.* Geneva, 1952. 94 pp.

The general report for the fourth session of the Iron and Steel Committees describes recent trends in supply and demand on the iron and steel market, outlines the modernisation and development plans of the various countries, and reviews labour conditions in the industry since 1949.

The first part of the second report gives an outline of present practice and trends in vocational training in a number of countries. It then analyses certain features of the industry which have made vocational training more difficult, and makes a comparative survey of the skills required of production workers in various countries. The second part of the report deals with the two aspects of promotion : access to supervisory positions and upgrading.

Publications of the United Nations and Other Intergovernmental Organisations

Council of Europe.

Committee of Experts on the Question of Refugees and Over-population : Final Report. Strasbourg, 1951. 91 pp.

As the first report of the Committee of Experts (June 1951) had indicated that more detailed study of the problem of refugees and over-population was necessary before the Council of Ministers could decide upon future action, the Committee met again in September 1951. Representatives of the United States Government and of the International Bank for Reconstruction and Development attended and statements on the activities and plans in the field of migration of the international organisations concerned were also made available. The final report of the Committee outlines the situation in the principal countries affected, analyses possible solutions in regard to both intra- and extra-European migration and makes recommendations concerning future action to the Council of Ministers.

International Bank of Reconstruction and Development.

The Economic Development of Guatemala. Report of a Mission sponsored by the International Bank for Reconstruction and Development in collaboration with the Government of Guatemala. Washington, 1951. xviii+305 pp. $5.

After dealing briefly with Guatemala's general economy, the report gives a detailed study, region by region, of the country's possibilities and the measures considered necessary as regards agriculture, industry, power, transportation and credits. The programme suggested recommends in particular a development of coffee production, increased industrial utilisation of agricultural products and the creation of an efficient system of communications.

Other Publications

General.

Central African Territories : Report of Conference on Closer Association, London, March 1951. Cmd. 8233. London, H.M. Stationery Office, 1951. 91 pp. 1s. 3d.

CITTADINI, Cittadino. *Missione Latina nella reconciliazione tra oriente ed occidente.* Rome, Jandi Sapi Editori, 1951. 214 pp. 500 lire.

COLONIAL OFFICE AND CENTRAL OFFICE OF INFORMATION. *Introducing the British Pacific Islands.* London, H.M. Stationery Office, 1951. 96 pp. 2s. 6d.

ROYAL INSTITUTE OF INTERNATIONAL AFFAIRS. *The Scandinavian States and Finland.* A Political and Economic Survey. London, New York, 1951. viii+312 pp. 21s.

SOCIALDEMOKRATISKA PARTISTYRELSEN. *Aktuell politik.* Stockholm, Socialdemokratiska Partistyrelsen Tidens Förlag, 1951. 192 pp. 3.5 kronor.

STEINITZ, Benno. *Helden der Menschlichkeit.* Ein Beitrag zur Geschichte des sozialen Gewissens. Zürich, Orell Füssli Verlag, 1950. 358 pp.

A study of the reformers and pioneers Valentin Haüy, John Howard, Wilberforce and Clarkson, Pestalozzi and Fröbel, Robert Owen, Lord Shaftesbury, Henri Dunant, Tolstoy and Nansen.

THOMAS, Lewis V., and FRYE, Richard N. *The United States and Turkey and Iran.* American Foreign Policy Library. Cambridge, Mass., Harvard University Press, 1951. xii+291 pp. $4.25.

WALTERS, F. P. *A History of the League of Nations.* 2 vols. London, New York, Toronto, Oxford University Press, for the Royal Institute of International Affairs, 1952. xv+463 and viii+369 pp. 60s. the set.

Social and Economic Questions.

ACTON SOCIETY TRUST. *Nationalised Industry:* 1. *Accountability to Parliament;* 2. *The Powers of the Minister;* 3. *Problems of Promotion Policy;* 4. *The Men on the Boards.* London, 1950. 33, 20, 20, 22 pp. 2s. each.

ANGLO-AMERICAN COUNCIL ON PRODUCTIVITY. *Brushes.* Report of a visit to the U.S.A. in 1950 of a Productivity Team representing the British Brush Industry. London, New York, 1951. x+54 pp. 2s. 6d.

— *Packet Foods.* Report of a visit to the U.S.A. in 1951 of a Productivity Team representing the British Packet Foods Industry. London, New York, 1951. xii+71 pp. 4s. 6d.

— *Universities and Industry.* Report of a Specialist Team which visited the United States of America in 1951. London, New York, 1951. viii+29 pp. 2s. 6d.

A study of the relations between the universities and industry in the U.S.A. It recommends that British industry should recruit a larger proportion of persons from the universities and technical colleges, and that adequate training facilities should be provided for preparing young men for industry.

ASSOCIATION OF SCIENTIFIC WORKERS. *Science in the Universities.* A memorandum prepared by the National Universities Committee of the Association of Scientific Workers. London, 1951. 39 pp. 1s.

A review of the developments in science in the British universities since 1944, from the point of view of the university scientist-teacher, research worker and research student. It recommends that specialisation should not begin until the first two years of a degree course have been completed, and that every effort should be made to encourage local production of scientific apparatus and textbooks and to provide new permanent buildings, in order to remove the strain caused by existing overcrowding.

BANCO DE GUATEMALA, Departamento de Estudios Económicos. *Ingreso Nacional de Guatemala.* By J. A. PALACIOS. Guatemala, 1951. v+139 pp.

After a full analysis of the various theoretical aspects of social accounting, the author applies these concepts to the national income figures for Guatemala in 1949-50. The complete calculation of gross national product, net national product, national income, etc., are presented for the first time in Guatemala, together with the social accounts divided in the traditional manner into " trade ", " government ",

" abroad " and " individuals ". Two appendices are included, giving the sources of information in Guatemala and certain data of the economy based on national income statistics.

BOULDING, Kenneth E. *A Reconstruction of Economics.* New York, John Wiley & Sons, Inc., London, Chapman & Hall, Limited, 1950. xiii+311 pp. $4.50.

This important book undertakes a restatement of most aspects of economic analysis. The theory of the firm is treated with the balance sheet as its central analytical concept, and with asset preferences as a central concept in explaining the behaviour of all economic organisms. In particular, this same approach is used in considering the behaviour of private consumers.

Again, in the field of macro-economics, the concept of the balance sheet leads the author to treat the process of exchange and payments separately from the theory of output as a whole and of employment. It also provides him with a theory of distribution of income between wages and profits which, he emphasises, is based on decisions concerning investment, consumption, finance and liquidity rather than on wage bargaining.

This work does not revolutionise economics. Rather it takes a number of important recent contributions, including the author's, and applies them to the whole body of economic theory. The result is a refreshing and invigorating reconstruction of economics.

BURLAUD, Paul. *La réforme monétaire de juin 1948 et les problèmes de la main-d'œuvre en Allemagne occidentale.* Bonn, 1951. 173 pp.

A study of the unemployment problems which arose after the currency reform in 1948, and their causes. The author believes that the present problems in the labour market were emphasised by the currency reform and subsequent measures of monetary policy but were not a direct result of them. Unemployment in the present Federal Republic is structural in nature and can be cured only by a geographical redistribution of the working population and investment in the basic industries.

CANADIAN MINISTRY OF RESOURCES AND DEVELOPMENT, Forestry Branch, Forest Products Laboratories Division. *Canadian Woods, Their Properties and Uses.* 2nd edition. Ottawa, Edmond Cloutier, King's Printer, 1951. xv+868 pp. $3.

CATHERINE, R., FOURRÉ, M., GRILLAT, L., BATAILLE, M., BLOCH, P.-L., DAGORET, R., DEPIERRE, R., GIORDANO-ORSINI, R., GOUX, A., HALPHEN, P., LACROIX, L., PINEAU, R., SCHOETTL, R., THOMAS, J., AUBRY, F., DAVID, M., LEBOULEUX, P., NICOLAS, P. *Commerce américain et productivité.* Rapport de la mission d'étude des structures et des techniques commerciales américaines (avril-mai 1950). Paris, Presses Universitaires de France, 1951. 356 pp. 800 francs.

CONTACTGROEP OPVOERING PRODUCTIVITEIT. *Lastechniek.* Rapport Productiviteitsgroep Industrie. The Hague, 1951. 103 pp. 2.50 guilders.

DEVONS, Ely. *Planning in Practice.* Essays in Aircraft Planning in War-time. Cambridge University Press, 1950. viii+231 pp. 15s.

FÉDÉRATION EGYPTIENNE DE L'INDUSTRIE. *Annuaire, 1950-51.* Cairo, 1951. 404 pp.

FÜRTH, Arthur. *Braunkohle und ihre chemische Verwertung.* Revised edition prepared by Hans MUNDERLOH. Technische Fortschrittsberichte, No. 11. Dresden, Leipzig, Verlag von Theodor Steinkopff, 1951. viii+216 pp.

GROTE-MISMAHL, Ulrich. *Neubau deutscher Wirtschaft durch konstruktiven Sozialismus.* Berlin, 1951. vii+498 pp.

A plan for the reconstruction of the German economy through " constructive socialism " or a synthesis of socialist principles of economic planning and those

elements of the present economic market organisation which have been the outcome of an organic process of growth and have proved their effectiveness and efficiency. One corollary of the author's argument is that planning does not require the socialisation of industries and may even be more efficient without it. The programme relates both to long-term prospects of economic development and to some urgent contemporary problems, such as the final distribution of the war damage burden over the population as a whole.

KOVAČ, Pavle. *O razvitku organizacije upravljanja privredom u FNRJ.* Belgrade, RAD, 1951. 140 pp.

A chronological survey of structural changes in the organisation of the Yugoslav economy. After a brief historical and ideological outline covering the period 1941-45, the author describes the reorganisation of the whole economic structure in connection with the launching of the first five-year plan. From the administrative point of view the centralisation of functions and control seems to be the main feature of that period. Special attention is given to the changes which took place at the end of 1947 as a result of political developments and which led to certain adjustments in the national economic plan. The period starting with 1950 is characterised by a decentralisation of economic organisation, shifting economic initiative to the various republics, regions and industries. The author gives a detailed picture of the administrative apparatus in several branches of economic activity (industry, transport, banking, wholesale and retail trade and co-operatives).

MINISTÈRE DES AFFAIRES ÉCONOMIQUES, Service d'Études et de Documentation Économiques. *La fortune nationale du Grand-Duché de Luxembourg en 1950.* Cahiers économiques du Service d'Etudes, No. 1. Luxembourg, 1951. 63 pp.

MINISTÈRE DES COLONIES DE BELGIQUE. *Plan décennal pour le développement économique et social du Ruanda-Urundi.* Brussels, Editions de Visscher, 1951. xxxix+598 pp.

After a detailed account of the situation of the labour force—distribution, output, remuneration, conditions of work, emigration—the report catalogues the needs of the native populations as regards food, water supply, clothing, housing, town planning, public health, education and social welfare. A second part is devoted to the non-native population and forecasts their evolution and prospects. The next four parts contain plans for the development of public services, animal and vegetable production, industry, trade and scientific research. The final part surveys the requirements in terms of construction, staff and expenditure. The study covers the period from 1950, when work on the ten-year plan first began, up to the end of 1959.

NATIONAL PLANNING ASSOCIATION. " *Operation Bootstrap* " *in Puerto Rico.* Report of Progress, 1951. By Stuart CHASE. Prepared for the N.P.A. Business Committee on National Policy. Planning Pamphlets, No. 75. Washington, 1951. vii+71 pp. $1.

OLIVER, Douglas, L. (editor). *Planning Micronesia's Future.* A Summary of the United States Commercial Company's Economic Survey of Micronesia, 1946. Cambridge, Mass., Harvard University Press, 1951. ix+94 pp.

WALLICH, Henry Christopher. *Monetary Problems of an Export Economy.* The Cuban Experience, 1914-1947. Cambridge, Mass., Harvard University Press, 1950. xv+357 pp. $5.

Though this volume deals specifically with the monetary problems of Cuba, it would be safe to say that the experience of this country is of general interest to other underdeveloped countries depending on a single export. The first twelve chapters trace the history of monetary policy from 1914 to 1947 ; the remaining four chapters are analytical and discuss the most suitable lines of policy in monocultural export countries, with special reference to the exchange problems which are of such importance.

WALLICH, Henry C., and ADLER, John H. With the collaboration of E. R. SCHLESINGER, Florence NIXON and P. J. W. GLAESSNER. *Public Finance in a Developing Country. El Salvador — A Case Study.* Cambridge, Mass., Harvard University Press, 1951. xviii+346 pp. $6.

An attempt to assess the public finances of an underdeveloped country and the general contribution of fiscal policy in economic development. The modern technique of economic analysis is used to study this problem which has not hitherto been thoroughly examined and which is of fundamental importance in countries where fiscal policy has not kept up with more advanced economic theories applied in other fields.

WELLS, P. A. *Wool.* " How Things are Obtained " Series. London, Educational Supply Association Ltd., 1951. 121 pp.

WORLD ORGANISATION OF THE TEACHING PROFESSION. *Proceedings of the Fifth Delegate Assembly, Valletta, Malta, July 20-26, 1951.* Washington, D.C., Edinburgh, 1951. 79 pp. 50 cents.

Statistics.

FRUMKIN, Gregory. *Population Changes in Europe since 1939.* A Study of Population Changes in Europe during and since World War II as shown by the Balance Sheets of Twenty-Four European Countries. New York, Augustus M. Kelley, Inc., 1951. 191 pp.

Based on official reports, direct information and supplementary estimates. The 1947 figures are based on projections of pre-war population, taking into account births, " normal " deaths, war losses, and population shifts.

KOSIOL, Erich. *Finanzmathematik.* Lehrbuch der Zinseszins-, Renten-, Tilgungs-, Kurs- und Rentabilitätsrechnung für Praktiker und Studierende. Wiesbaden, Betriebswirtschaftlicher Verlag Dr. Th. Gabler, 1951. 122 pp.

MISES, Richard von. *Wahrscheinlichkeit Statistik und Wahrheit.* Einführung in die neue Wahrscheinlichkeitslehre und ihre Anwendung. 3rd edition. Vienna, Springer-Verlag, 1951. ix+278 pp.

SMITH, T. E. *Population Growth in Malaya.* An Analysis of Recent Trends. Foreword by Frank W. NOTESTEIN. London, New York, Royal Institute of International Affairs, 1952. viii+126 pp. 15s.

Industrial Relations, Employers' and Workers' Organisations.

CAPEAU, Charles. *Le statut moderne du travail : La convention collective de travail; la conciliation et l'arbitrage.* Preface by Paul GRUNEBAUM-BALLIN. 2nd edition. Paris, Librairie Dalloz, 1951. v+158 pp.

The first edition of this work, which appeared in 1938, was a commentary on the French Acts of 1936 and 1938 concerning collective agreements and conciliation and arbitration. In the present edition, the author deals with the new legislation of 1950. In the course of his commentary he refers to the earlier legislation and the results of its application, and shows the main stages in the progress of French labour law.

Compilation of Laws relating to Mediation, Conciliation, and Arbitration between Employers and Employees; Laws Disputes between Carriers and Employers and Subordinate Officials under Labor Board; Eight-hour Laws; Employers' Liability Laws; Labor and Child Labor Laws. Compiled by Elmer A. LEWIS. Washington, Government Printing Office, 1951. xii+847 pp.

CONFEDERAZIONE ITALIANA SINDACATI NAZIONALI LAVORATORI (C.I.S.N.A.L.). *Atti del Convegno di Studi tenutosi a Roma il 20-21-22 ottobre 1951.* Rome, Edizioni della CISNAL, 1951. 126 pp. 300 lire.

KREHER, Jean. *Conventions collectives et conflits collectifs du travail.* Paris, Henry Lafont, 1951. 83 pp. 600 francs.

An examination of the statutory principles governing French law on industrial relations, based on the Act of 11 June 1950, the regulations and court decisions. The first part is devoted to collective agreements and wages, and the second part to the right to strike and conciliation.

MOHORTYNSKI, Piotr. *Essai sur l'évolution du syndicalisme depuis 1918 sous l'aspect de la collaboration entre le capital et le travail.* Thèse présentée à la Faculté de Droit de l'Université de Fribourg pour l'obtention du grade de docteur ès sciences économiques et commerciales. Strasbourg, Le Roux, Imprimerie Müh, 1951. 199 pp.

STURMTHAL, Adolf. *The Tragedy of European Labor, 1918-1939.* New York, Columbia University Press ; London, Geoffrey Cumberlege, 1951. xxiv+389 pp. 32s. 6d.

Labour Law.

BALTIĆ, Aleksandar M. *Radno Pravo FNRJ.* Materijal za ispite iz radnog prava. Belgrade, 1951. 156 pp.

A manual for examinations in labour law.

GONZÁLEZ CHARRY, Guillermo. *Doctrinas y Leyes del Trabajo.* Jurisprudencia del H. Tribunal Supremo del Trabajo correspondiente a los años de 1947, 1948, 1949 y junio inclusive de 1950 ; Organización Judicial del Trabajo ; Código Sustantivo y Código de Procedimiento en los juicios del Trabajo. Bogotá, Universidad Nacional de Colombia, Sección de Extensión Cultural, 1951. 614 pp.

HERSCHEL, Wilhelm and STEINMANN, Georg. *Kommentar zum Kündigungsschutzgesetz.* Heidelberg, Verlagsgesellschaft " Recht und Wirtschaft ", 1951. 174 pp. 12.60 marks.

A detailed commentary on the Federal Act of 10 August 1951 governing dismissal from employment, with a useful appendix containing the texts of all other laws on the termination of service contracts (civil, commercial and industrial codes, etc.).

MINISTERIO DE FOMENTO Y OBRAS PÚBLICOS. *Reglamentos del Código de Mineria.* Edición Oficial. Lima, 1951. 332+ix pp. 50 soles.

Includes the Peruvian regulations on safety and hygiene in mines.

Management.

ANGLO-AMERICAN COUNCIL ON PRODUCTIVITY. *Education for Management.* Productivity Report. Report of a visit to the U.S.A. in 1951 of a Specialist Team concerned with Education for Management. London, New York, 1951. xii+86 pp. 4s. 6d.

BRITISH INSTITUTE OF MANAGEMENT. *Foremanship Training in Technical Colleges.* London, 1951. 36 pp. 2s. 6d.

The report of a sub-committee of the British Institute of Management appointed in May 1949. It contains a review of existing foremanship training facilities in the United Kingdom and suggestions for the development of courses in technical colleges. These include the immediate introduction of a series of recurrent, short non-examinational courses, each of about six weeks' duration and suited to the needs of both existing and potential foremen who possess varied experience and are recruited from a wide range of industries. A series of appendixes contain examples of courses and schemes for the training of foremen.

LANDY, Thomas M. *Production, Planning and Control.* McGraw-Hill Industrial Organization and Management Series. New York, Toronto, London, McGraw-Hill Book Company, Inc., 1950. xii+436 pp.

MALLICK, Randolph W., and GAUDREAU, Armand T. *Plant Layout, Planning and Practice.* New York, John Wiley & Sons, Inc.; London, Chapman & Hall, Ltd., 1951. xii+391 pp. $7.50.

SMITH, Nelle Van D. *Human Relations: Labor and Management.* New York, Exposition Press, 1951. 136 pp. $3.

ZALEZNIK, A. *Foreman Training in a Growing Enterprise.* Boston, Harvard University, 1951. xv+232 pp. $3.50.

A doctoral thesis based on the results of direct research in a single undertaking. It focuses attention on the administrative function of the foreman and the kind of help supervisors need from training for more effective action on the job. After describing the training meetings, it reproduces a number of interviews with supervisors and gives the author's deduction from intensive observation of a particular foreman in the operations of an assembly line.

ZUMSTEIN, Jörg. *Die Rolle des Werkmeisters im Betrieb: Wesen, Einsatz, Ausbildung.* Dissertation zur Erlangung der Würde eines Doktors der Wirtschaftswissenschaften vorgelegt der hohen juristischen Fakultät der Universität Freiburg in der Schweiz. Zürich, Juris-Verlag, 1951. 126 pp.

A study of the role of the foreman in industry, his functions and training, based partly on relevant literature and partly on the results of an enquiry made in about twenty Swiss undertakings (chiefly in the metal trade). It is shown that the role of the foreman is of the first importance in dealing with the human factor in industry, and emphasis is laid on the need for a thorough training of the men who are to be entrusted with these duties.

Manpower; Migration.

FRINGS, Paul. *Das internationale Flüchtlingsproblem, 1919-1950.* Frankfurt on Main, Verlag der Frankfurter Hefte, 1951. 296 pp.

This extensive study of the refugee problem between 1919 and 1950 surveys the experience and achievements of governmental and non-governmental international refugee organisations. The present situation in five "refuge countries" and ten immigration countries is described, giving data on the number and distribution of refugees, re-emigration, manpower requirements or unemployment, and some data on the administrative organisation of migration. The final chapter offers a suggested solution of the refugee problem within the framework of international organisations. Mention is made of the Special Migration Fund and the past and possible future contributions of the I.L.O. An appendix contains a bibliography and a statistical abstract of the migratory and refugee movements throughout the world, based on the U.N. *Monthly Bulletin of Statistics.*

GENERAL REGISTER OFFICE. *Internal Migration: Some Aspects of Population Movements within England and Wales.* By Mary P. NEWTON and James R. JEFFERY. Studies on Medical and Population Subjects, No. 5. London, H.M. Stationery Office, 1951. 44 pp. 1s. 6d.

GEYER, Herbert. *Arbeitslosigkeit — muss das sein?* Eine kritische Analyse von Vorschlägen und Massnahmen zur Arbeitsbeschaffung. Schriftenreihe des Sozialwissenschaftlichen Archivs an der Joh. Wolfgang Gœthe-Universität. Frankfurt on Main, J. Saffran-Verlag, 1951. 106 pp.

A systematic study of all the proposed or adopted measures for overcoming unemployment in Western Germany. The Federal Government has been pursuing a policy of encouraging investments and has inaugurated a programme of public works and housing construction. The author believes that the various measures taken during 1950 eliminated most of the unemployed due to economic fluctuations, and provided work for about 800,000 persons. But the problem of structural unemployment remains unsolved. In this respect Western Germany should be regarded as an underdeveloped area both from the industrial and agricultural

points of view. The problem can only be solved by reorganising the economy by means of an over-all plan based on adequate statistical data and a thorough study of national revenue.

The numerous references given by the author suggest that the book may be regarded as a basic study on the unemployment problem in Western Germany.

HERRING, John P. *Labor Force, Employment and Unemployment. Annual Estimates by State : 1900-1940.* Seattle, University of Washington Press, 1951. iii+55 pp.

KONDAPI, C. *Indians Overseas, 1838-1949.* Bombay, Calcutta, Madras, London, Oxford University Press, for the Indian Council of World Affairs, 1951. xi+558 pp. 20 rupees.

A study on the living and working conditions of Indians who have migrated from their homeland and of their descendants, a work encyclopaedic in character and of importance for the study of migrant labour throughout the world. The sections dealing with the systems of recruitment of Indian labour, conditions of work, labour legislation and welfare, educational facilities, disabilities and political status, cover the legal, social and economic aspects of the problems involved. In addition, all material is thoroughly documented and a good bibliography on primary sources is provided in the appendix.

Naissance du Prolétariat Marocain. Enquête collective, 1948-1950. Cahiers de l'Afrique et l'Asie, No. III. Paris, Peyronnet & Cie., 1950. 291+xxvi pp. 1,200 francs.

The results of an investigation carried out, under the direction of Mr. Robert Montagne, Professor of the *Collège de France*, by various official Moroccan institutions during the years 1948-50. The first part is devoted to a description of tribal emigration, its causes and the effects of temporary emigration. The second is a study of the working-class centres in the towns of North Morocco, of living, working and social conditions, and of the employment of Moroccan workers in European services and undertakings.

NOURISSIER, F., and PILLÉPICH, A. *Enracinement des immigrés.* Réalités du travail social, No. 16. Paris, Bloud & Gay, 1951. 240 pp. 360 francs.

Immigration into France can be divided into three principal groups : persons in search of work, political and racial refugees and North African workers. The book describes the various causes of immigration, the composition of each group, and the legal, economic and social aspects of the reception arrangements.

The authors have tried to discover how the economic and cultural life of France can obtain the fullest benefit from each type of immigration without doing violence to the personality of the newcomers.

Vocational Guidance.

UNITED STATES DEPARTMENT OF LABOR, Bureau of Labor Statistics. *Occupational Outlook Handbook.* Employment Information on Major Occupations for Use in Guidance. Prepared in co-operation with the Office of the Assistant Administrator for Vocational Rehabilitation and Education, Veterans Administration. Bulletin No. 998 (Revision of Bulletin 940), 1951 edition. Washington, 1951. xv+576 pp. $3.

A clearly written manual giving reliable information on employment prospects for a number of occupations, which is intended to help young people in starting their working life as well as to give professional advice to ex-service people and to those seeking new jobs or wishing to change occupations. For each group of occupations information is given on the expected employment situation for the coming years (possible absorption or probable saturation), the type of work available, vocational guidance before and on beginning a job, and the method and rates of payment, together with a list of public and private institutions from which additional information can be obtained.

Wages ; Conditions of Work, etc.

CANADIAN TEACHERS' FEDERATION. **Research Bulletin No. 1 : *Survey of Forty-nine Salary Schedules, Cumulative Sick Leave, Retiring Allowances and Other Conditions of Employment of Teachers in Twenty-seven Canadian Cities.*** Ottawa, 1951. 83 pp.

INTERNATIONAL FEDERATION OF INDUSTRIAL ORGANISATIONS AND GENERAL WORKERS' UNIONS. ***Second Report on Wages and Conditions of Employment in the Glass Industry of Some Countries.*** Amsterdam, 1951. 30 pp.

Information on collective agreements, wages, supplementary payments, hours of work and vacations, contributions to social insurance, occupational diseases, etc., supplied by trade unions in nine continental European countries, the United Kingdom and the United States. Published in English, French and German.

INTERNATIONAL UNION OF FOOD AND DRINK WORKERS' ASSOCIATIONS. ***Wages and Working Conditions in the Flour Milling Industry in Eight European Countries.*** Copenhagen, 1952. 30 pp.

TOSDAL, Harry R., and CARSON, Jr., Waller. ***Survey of Salesmen's Compensation.*** A Report Summarizing a Questionnaire Survey Conducted Jointly by the Graduate School of Business Administration, Harvard University, and the National Sales Executives, Inc. New York, National Sales Executives, 1951. 80 pp. $2.

Rehabilitation.

HANMAN, Bert. ***Physical Capacities and Job Placement.*** A critical study of the theory and practice of job placement in nine European countries and the United States, with special reference to the placement of disabled persons, and containing a manual of operations. Stockholm, Nordisk Rotogravyr, 1951. 167 pp. 22 kronor.

This book is not intended for the specialist alone ; it is of interest to everyone concerned with placing workers generally and disabled persons in particular. The chapter on job placement is not confined to workers commonly referred to as " disabled " but covers workers of all kinds, the author noting that not more than one in every hundred workers is physically fit for every kind of job. Placement practice is the subject of a special chapter, which defines the objects of placement and analyses the functions of personnel and medical departments.

From his material, the author argues that physical disability and fitness are entirely relative and that physical handicaps should not be confused with occupational handicaps. The determination of a worker's physical abilities in preparation for his placement in a job is only one of many placement problems and techniques ; allowance must also be made for a variety of psychological, social and moral factors. Moreover, the placement problem is by no means solved when once a man has started working in a job. There is a constant process of adjustment at all grades and in all types of work, which can never be regarded as complete and needs unremitting attention by the personnel and medical departments and also by the worker himself.

The author then goes on to show that disability lists are no solution to the placement problem. Apart from being based on disabilities instead of on abilities, this method neglects the fact that any given job may vary with the circumstances and that some disabled persons may be more adaptable than others. Such lists may, however, be instructive since they show that the majority of jobs can be performed by all kinds of disabled workers.

Placement is at present based upon the rating method. The author quotes a number of examples of its application and analyses their deficiencies. In the final chapter he gives a detailed description of " specific method " placement, emphasising the need to focus on the actual abilities of the worker and to avoid the vague general terms used in rating scales.

Social Security.

BINSWANGER, Peter. *Kommentar zum Bundesgesetz über die Alters- und Hinterlassenenversicherung. Nachtrag 1951.* Zürich, Polygraphischer Verlag A.-G., 1951. 80 pp.

CENTRAL HEALTH SERVICES COUNCIL, United Kingdom. *National Health Service Act, 1946 — Report of the Central Health Services Council for the year ending December 31, 1950, preceded by a Statement made by the Minister of Health.* London, H.M. Stationery Office, 1951. viii+47 pp. 1s. 6d.

The second report of the Central Health Services Council [1] deals mainly with the important subject of health centres. It recommends as an ultimate aim that health centres should provide general practitioner, dental and pharmaceutical services, local authority health services, visiting specialist and other out-patient services, etc., for from 10 to 20 thousand persons living within about half a mile. It considers that non-competitive group practice by doctors should be encouraged and proposes, as an immediate practical programme, that simple centres for group practice should be tried in areas where there are already satisfactory clinics, as well as in under-doctored areas. Some comprehensive health centres should also be built at once and new communities should have health centres from the start.

CICERCHIA, Guglielmo, COPPINI, Mario Alberto, COPPOLA D'ANNA, Francesco, CORSI, Angelo, GIUA, Stefano, MEDOLAGHI, Paolo, MESSINA, Ignazio, PALMA, Giovanna, PETRILLI, Giuseppe, VANNUTELLI, Cesare. *Capitalizzazione o ripartizione?* Rome, I.N.P.S. (Istituto Nazionale della Previdenza Sociale), 1951. 159 pp.

CUSIN, Alexander C. *Síntesis sobre la seguridad social o la nueva doctrina democrática.* Tres conferencias dictadas en la Escuela de Verano de la Universidad de la Habana en Julio de 1950. Publicaciones de la Cooperativa de Empleados del Ministerio de Agricultura. Preface by Miguel Angel CARBONELL. Havana, 1951. 59 pp.

INSTITUT NATIONAL DE LA PRÉVOYANCE SOCIALE. *Organisation et fonctions.* Rome, 1951. 154 pp.

MINISTERIO DE TRABAJO Y PREVISIÓN SOCIAL. *Recopilación de leyes y reglamentos sobre trabajo y seguridad social, promulgados hasta junio de 1951.* San Salvador, Imprenta Nacional, 1951. 298 pp.

REMIJN, A. *De sociale verzekeringswetgeving in Nederland.* Groningen, Djakarta, J. B. Wolters, 1951. 140 pp. 4.25 guilders.

SOCIETÀ ITALIANA DI MEDICINA SOCIALE. *Atti del I° Congresso Nazionale di Medicina Sociale, Milano, 4, 5, 6 Novembre 1950.* Milan, A. Wassermann & C., 1951. 213 pp.

TEGNER, Göran. *La sécurité sociale en Suède.* French translation by Michèle Cazaux. Stockholm, Institut Suédois, 1951, 134 pp.

After an introduction giving the historical background of Swedish social policy the author describes the present system of family and child care, the public health service, social insurance and assistance, housing policy and the protection of children and young persons.

Living Conditions.

CORONA CARREÑO, Guillermo. *El problema de la habitación campesina.* Memoria de prueba para optar al grado de Licenciado en la Facultad de Ciencias Jurídicas y Sociales de la Universidad de Chile. Santiago, 1951. 77 pp.

---

[1] For a review of the first report, see *International Labour Review*, Vol. LXIII, No. 4, April 1951, p. 471.

HUNZIKER, W. *Le tourisme social : caractères et problèmes.* Vol. I. Berne, Alliance Internationale de Tourisme, 1951. 112 pp.

An analysis of the notion of popular travel and of policy problems in this field.

XXTH INTERNATIONAL CONGRESS FOR HOUSING AND TOWN PLANNING, CITY UNIVERSITY, AMSTERDAM, 27 AUGUST TO 2 SEPTEMBER 1950. *Final Report.* Amsterdam, 1950. 116 pp.

The report contains a summary of discussions on the following subjects : the role of the voluntary housing association, the implementation of planning measures, prefabrication and building technique for housing, and industrial location in connection with town and country planning.

Agriculture.

COMITÉ NATIONAL BELGE DE L'ORGANISATION DES NATIONS UNIES POUR L'ALIMENTATION ET L'AGRICULTURE. *Monographies sur le bien-être rural en Belgique.* Elaborées en vue d'une conférence européenne pour l'étude du bien-être rural. Brussels, 1951. 199 pp.

INDIAN MINISTRY OF LABOUR. *Report on an Enquiry into the Conditions of Agricultural Workers in Village Magurpara in Assam State.* New Delhi, Government of India Press, 1951. v + 76 pp. 1 rupee 12 annas ; 2s. 6d.

— *Report of an Enquiry into the Conditions of Agricultural Workers in Village Brindabanpur, West Bengal State.* Delhi, Manager of Publications, 1951. 87 pp. 1 rupee 6 annas ; 2s.

PERRAUDEAU, Pierre. *La Protection Sociale en Agriculture.* Thèse soutenue devant la Faculté de Droit de l'Université de Caen, le 5 mai 1951. Saint-Lô, Leclerc, 1951. 318 pp.

After a historical introduction, the author examines the demographic, economic and social structure of rural life. He then analyses the present system of social security in agriculture, suggesting certain modifications that should gradually be introduced. He considers that the agricultural population should continue under a separate system based on friendly societies, but that all categories should be compulsorily covered against risks to health and to their means of production (natural risks) and that the system should be financed by contributions proportional to individual incomes.

ROBERTS, Henry L. *Rumania : Political Problems of an Agrarian State.* New Haven, Yale University Press ; London, Geoffrey Cumberlege, Oxford University Press, 1951. xiv + 414 pp. $6.

ROSS, Robert C. *An Introduction to Agricultural Economics.* New York, Toronto, London, McGraw-Hill Book Company, Inc., 1951. vii + 414 pp. $5.

VENEGAS QUEVEDO, Juan. *La caja de credito hipotecario (organización y funciones).* Memoria de prueba para optar al grado de licenciado en la Facultad de Ciencias Jurídicas y Sociales de la Universidad de Chile. Santiago, 1951. 98 pp.

WAITE, Warren C., and TRELOGAN, Harry C. *Agricultural Market Prices.* 2nd edition. New York, John Wiley & Sons, Inc. ; London, Chapman & Hall, Ltd., 1951. ix + 440 pp. $5.25.

Co-operation.

CAMPBELL, W. K. H. *Practical Co-operation in Asia and Africa.* Foreword by C. F. STRICKLAND. Cambridge, H. Heffer & Sons, Ltd., 1951. xxii + 275 pp. 21s.

An essential guide book for all workers in the co-operative field, even outside the continents noted. The author, who is an expert, leaves little to be desired

in the way of advice and information. The appendices on laws, accounts, etc., are particularly useful.

DEUTSCHER RAIFFEISENVERBAND. *Deutscher Raiffeisentag, 3. und 4. Juli 1951 in Stuttgart.* Bonn, 1951. 128 pp.

DIREZIONE GENERALE DELLA COOPERAZIONE. *Il Congresso di Copenaghen.* By Alberto BASEVI. Extract from *La Revista della Cooperazione*, No. 27. Rome, 1951. 143 pp. 500 lire.

KRUITHOF, A. *Verbruikscoöperatie.* Amsterdam, N. V. Internationale Uitgeversmaatschappij " Het Wereldvenster ", 1951. 134 pp.

VOUTCHKOVITCH, Mihaïlo. *Comment réaliser les principes coopératifs dans l'économie publique.* Belgrade, Socijalistička Poljoprivreda, 1951. 75 pp.

An attempt to show how it is possible to integrate co-operation into the general economy. The first two chapters, dealing with relations between the co-operative movement and the State and with co-operative principles, form an introduction to the subject. The means by which integration is to be achieved are outlined in Chapter III. Chapters IV, V and VI give a description of the experiments made by the Yugoslav Government in associating co-operation with various economic activities of the country : nationalisation, the setting up of a co-operative council, collaboration between agricultural co-operatives and public authorities. In a brief concluding section, the author emphasises the social value of co-operative organisation.

GEORGE ALLEN & UNWIN LTD.

Noel Buxton: A Life

MOSA ANDERSON

Through his independence of thought, his energy and courage, Noel Buxton was led into the vanguard of liberalism, and later into the Labour Party. The Agricultural Wages Act, which was his great achievement as Minister of Agriculture, owed its being to his determination and vision. The author gives a revealing picture of Noel Buxton and the pages of history in which he had a share. 16*s. net*

The Commerce of Nations

J. B. CONDLIFFE

"Examines the interaction of fact, theory and policy from the Mercantilists to the Neutralists, with a wealth of illustration and argument, cleverly marshalled and lucidly set out . . . his book is an indispensable addition to the library."—*Tribune.* "The book would be excellent preparatory reading for the intending economist or economic historian, or a good general survey for the industrious layman."—*The Listener.* 36*s. net*

Reflections on the Revolution of Our Time

HAROLD J. LASKI

"A masterpiece of sociological and political analysis . . . Some of the chapters of his reflections are truly epical pictures . . . so full and mature as to deserve the description 'classical'."—*Tribune.* "A scintillating book . . . everybody will be better for having read and still more for having digested it . . . intellectual clarity, erudition, moral fervour and dignified English."—*The Times Literary Supplement.* *4th imp.* 15*s. net*

International Economics

JACOB VINER

International Economics reflects a constant effort on the part of one of the world's leading economists to apply theoretical analysis to concrete issues of policy. An introduction to the subject on the best level of contemporary writings. 40*s. net*

40 MUSEUM STREET, LONDON, W.C. 1

OCCUPATIONAL PSYCHOLOGY

Quarterly Journal of Industrial and Vocational Psychology

Contents of April 1952 issue

Education for Management in the United States: Some Impressions and Reflections. By C. A. MACE.

Some Working Hypotheses and Provisional Conclusions in the Study of Committees and Conferences. By John COHEN.

The Establishment for Research Purposes of Two Criteria of Occupational Adjustment. By Alastair HERON.

Measuring Motivation in Industry. By Frank A. HELLER.

The Use and Value of Graphical Material with a Written Text. By M. D. VERNON.

Annual Subscription: 30*s*.

NATIONAL INSTITUTE OF INDUSTRIAL PSYCHOLOGY
14 WELBECK STREET, LONDON, W. 1

THE REVIEW OF ECONOMIC STUDIES

Partial Contents of No. 49: Vol. XIX (2) 1951-52

Simple Transaction Models, Information and Computing . . . Richard STONE

An Engineer's View of the Problem of Economic Stability and Economic Regulation . . . . . A. TUSTIN

Some Cambridge Controversies in Monetary Theory . . . Harry G. JOHNSON

Annual subscription: 15*s*. *per vol., post free.* *Price per issue:* 5*s*.; 5*s*. 3*d*. *post free*
U.S.A. and Canada: $4 *per vol.*

Back number rates on application to Secretary. Cheques, whether drawn in sterling or dollars, should be made payable to the Review of Economic Studies.

Editorial communications should be sent to The Editor, Review of Economic Studies, Nuffield College, Oxford. *Articles from the U.S.A. and Canada should be sent to* P. A. Samuelson, Massachusetts Institute of Technology, Cambridge, Mass. *All other communications to* The Secretary, Review of Economic Studies, 4, Trumpington Street, Cambridge, England.

THE LABOUR GAZETTE

Published monthly by the Deputy Commissioner of Labour (Information), GOVERNMENT OF BOMBAY, INDIA

Started in 1921, the *Labour Gazette* is a journal for the use of all interested in obtaining prompt and accurate information on matters specially affecting labour in India and abroad. It contains statistical and other information on cost of living, retail prices, industrial disputes, absenteeism, trade unions, orders and awards of the Industrial Court, Bombay, and Tribunals, labour legislation, etc. Special articles embodying results of enquiries and research relating to wages, hours of work, unemployment, family budgets, etc., are published from time to time.

Annual subscription: 15 rupees. *Single copies:* 1 rupee 8 annas.

INDIAN JOURNAL OF ECONOMICS

Official Organ of the Indian Economic Association
(Founded 1918)

Contents: Articles by recognised authorities on economic theory, economic history, Indian economic problems, public finance, business finance, insurance, planning, statistical methods, econometrics, mathematical economics, money and banking, trade, industrial organisation, marketing, transportation, agriculture, industries, economic geography, labour and industrial relations, social insurance, co-operation and population: book reviews; notes on current economic affairs.

Published quarterly. Annual Subscription: inland, Rs. 12; foreign, £1 4*s*., or $5.50.

THE DEPARTMENTS OF ECONOMICS AND COMMERCE
UNIVERSITY OF ALLAHABAD, U.P., INDIA

Science & Society

(Established 1936)

Volume XVI, Number 2, Spring 1952

The Social Thinking of F. Scott Fitzgerald . . . . . Richard Greenleaf
Trends in the Economic Status of the Negro People . Victor Perlo
Women's Rights in the French Revolution . . . . . Elizabeth Racz

Reviews by :

Bernhard J. Stern, Edwin Berry Burgum, Kenneth May, Henry Pratt Fairchild, Arthur K. Davis, and Ernest F. Patterson.

Quarterly, 50c. single copy *$2.00 per year ($2.50 foreign)*

SCIENCE & SOCIETY, Inc., 30 East 20 Street, New York, 3, N.Y.

PHILOSOPHIC ABSTRACTS

This quarterly publication is the international abstract journal of philosophy, ethics, logic, metaphysics and allied fields. Brief abstracts provide a comprehensive survey of all important new books in philosophy. Subscription : $5.00 per year.

Recent Books of Interest

McElroy : Modern Philosophers, $4.00.
Moore : Readings in Oriental Philosophies, $3.00.
Fatemi : Diplomatic History of Persia, $6.00.
Mayer : Essentialism, $3.25.
Lebkicher : Saudi Arabia, $6.00.
Jaspers : Existentialism and Humanism, $3.50.

Russell F. Moore Co., Inc. 475 Fifth Avenue, New York 17, N.Y.

The INTERNATIONAL SOCIAL SCIENCE BULLETIN

A quarterly review which acquaints social scientists in various countries with work conducted by organisations and individuals concerned with an objective approach to human relations

Published by the United Nations Educational, Scientific and Cultural Organization, Paris

Subscription : $3.50 ; 21*s.*
Single copies : $1.00 ; 6*s.*

THE ECONOMIC RECORD

The Journal of the Economic Society of Australia and New Zealand

As the journal of the Economic Society of Australia and New Zealand, the *Economic Record* is the main source for those who are interested in discussion, at the professional level, of economic problems in those countries. But it is not confined to local subjects or local authors. It includes articles of general interest in the field of theoretical and descriptive economics, econometrics and economic history.

Published half-yearly in May and November

Single copies : 6*s.* (Australian) *Annual subscription :* 12*s.* (Australian)

Subscriptions should be sent to the publishers : The Managing Director, The Melbourne University Press, Melbourne, N. 3, Australia

UNITED NATIONS

Monthly Bulletin of Statistics

The *Monthly Bulletin of Statistics*, prepared by the Statistical Office of the United Nations, is the foremost source of current, official statistics on world economic and social conditions. Each issue contains information on more than 60 subjects from more than 70 countries in the following fields:

Population	Manufacturing	Internal Trade
Manpower	Metals	External Trade
Forestry	Construction	Wages and Prices
Industrial Production	Public Utilities	National Income
Mining	Transport	Finance

In addition to the regular tables, statistical data on special subjects of current interest are included. Each table shows annual figures for 1937 and 1938 and from 1948 on, as well as monthly figures for the most recent eighteen-month period.

A special feature of each issue of the *Monthly Bulletin of Statistics* is a section describing certain of the main economic and social trends indicated in the tables.

Each subscription includes a copy of the *Supplement* (available in English, French or Spanish), which contains detailed definitions and explanatory notes to the various statistical series.

The text and footnotes in the *Monthly Bulletin of Statistics* appear in both English and French.

Annual subscription (post paid): $10.00; £3 15s.; 40 Swiss francs
Single copy: $1.00; 7s. 6d.; 4 Swiss francs

Obtainable from United Nations sales agents